

Marie's Atlas

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This book is dedicated to my family.

I would like to thank and acknowledge the following:

Dustin, my loving husband, for your support.

My Mom, for your encouragement, education, and nurturing.

Maureen, for your friendship and time.

My children, for your creativity, playfulness, and joy.

Worcester State College departments of Mathematics and English, for the quality and enjoyable education I received.

To every scientist, mathematician, artist, and creative individual that has given mankind the building blocks to continue discovery and art.

Sophia Estelle Wood

MEET ARTI

Marie wiped the sweat from her tanned brow as she sat under the afternoon sun, amazed at how fast the day had heated up. Days in the desert were exhausting; temperatures here would fluctuate from freezing in the morning to scorching hot by noon. Marie went from teeth-chattering cold in the morning to a damp, sweaty shirt by early afternoon. But at least she had grown used to the grime of dried sweat, the leftover salt deposits and sand in the air, the crunch of the ancient seabed under her feet, and the hot afternoon sun. It reminded her of being close to the sea, but without the refreshing breeze or the cool water to dip in. Her youthful fingers combed the sand beside her in a slow,

yet meditatively rhythmic way, as if she were in her own private Zen garden. She thought that few places on Earth could be so peaceful and yet as mysterious as a desert. It was a state of simplicity and vastness, which was exhilarating at times for a young scientist.

Watching the team of researchers on the next mound, she squinted to see what they were pulling up from their man-made crevasse.

A hot breath of air forced itself past and pulled Marie's hat away from her head. She swiftly grabbed it knowing that without it her dark hair would cook her head under the blaring sun. As an experienced desert-dweller, she wore long sleeves, large hats, and loose shorts to help her cope with the heat. She had tanned some, but her mostly fair Irish complexion kept her from fully adapting to the constant burn. Another burst of hot air grabbed her hat and blew it right into the dig site.

The desert winds had a way of making the desert seem alive. Gusts acted like invisible hands grabbing, throwing, burying, and stealing. Marie felt the personality of each desert she went to. This particular desert was a hat-blowing one.

Marie rolled her eyes, jumped up and chased her hat. She leapt once to the left and the hat moved to the right. She leapt again and the hat went to the left. With a quick burst of energy she jumped and grabbed the hat while landing with her feet halfway on stone and halfway hovering over a

ten-foot hole where the scientists were carefully brushing bones.

“Watch it!” Henry called. He smiled at Marie as she stepped back from the edge. His silver gray beard seemed to reflect the sun into her eyes. His smile was extremely contagious. It stretched from ear to ear and wrinkled his face, leaving everyone smiling.

“Sorry, just about spilled into that one.” Marie laughed and smiled back. Anyone else would have been embarrassed, but not Marie. Everyone here was like family and she could just be herself. Her antics didn't seem to bother anyone, for they loved her sense of humor and quirky style. Marie was one of the team, and she knew it.

“Wow, you have really got a lot of fossils down there.” She peered over with both feet on steady ground this time.

“Yeah! And do we have a job for you! But this one might be over your head this time” Marie's Dad yelled up at her with a wink. His smile always made her heart joyful.

“I doubt it. Go ahead and try to stump me. I dare you!” Marie had sass, albeit loving sass. She excitedly wondered what kind of job her Dad had in store for her.

“I'll get it to you tonight. By the way, is your schoolwork done?”

“Mmmmm...” Marie looked down at her shoes. “No.” As much a telling the truth about being lazy that day was

difficult, it was a foundation for the family. Truthfulness was expected, and being honest allowed Marie to have her parents' trust. With trust, she was able to do a lot of things on her own and have responsibilities that gave her an abundance of freedom.

“Well, get to it. Can't spend all day combing fingers in the sand and daydreaming.”

“Yes, Dad. See you in a little bit.” Marie blew a kiss down the dig and ran off to her home.

She closed the door to the trailer and took a deep breath of cool air. The trailer was big for a mobile home. It had two bedrooms, a large living room, a nice kitchen, and a not-too-shabby bath. Marie gulped water down before going to her room. The water eased her dry gums from tugging at her lips. It was hard to stay hydrated in the heat. Her canteen had run out over an hour ago, and in that time she had become parched.

Marie looked at her homeschool checklist. She needed to write her pen pal, finish her number theory work, and fix a bug in her robot's programming. Marie had to be homeschooled since she was always moving from one dig site to the next. Her parents were the lead scientists for a lot of different projects and grants. Learning to make friends quickly, create unity in the team, and detach from wanting to stay once you settled in were just facts of life. However, Marie did love getting to see the world, to be part of

discovery, and to learn at her own pace.

“Well, let’s knock it out.” Marie whispered to herself. That was her way. Without a lot of kids to talk to, she had developed the comfort of self-conversation. She was a monologue enthusiast. “Dad won’t give me the job if I don’t get something done today.”

Marie longed for her parents’ “jobs.” She thought of them more as puzzles, though, than jobs. She had a knack for solving difficult, mind-challenging math problems and all kinds of brainteasers.

When she was three years old her mother found her in the closet with a box of unidentified bone fragments that the team had given up on. Marie had fully assembled the fragments into bones with preschool glue. Everyone was so amazed that they started to give her some of the difficult pieces to see if she could make sense of them. Every single puzzle (or “job”) was solved with her nimble fingers, acute mind, and peaceful patience. From that time on, Marie’s nickname was “Arti,” which was short for “Bone Articulator.” Instead of having to hire someone to piece fragments together, Marie had filled the position at a young age to formulate ancient creatures’ bones into coherent structures.

Marie threw some beans, peppers, onions, chili powder and tomatoes into the crockpot, and then set to work on her checklist. She methodically finished each task and even had

time to mix up some cornbread and pop it in the oven.

“Whew, so hot!” Marie’s Mom exclaimed when she walked in, her Dad right behind.

“Mmmm, sure smells good.” Her Dad’s nose seemed to wag back and forth taking in the aroma of dinner.

“I finished my work. Can I have the puzzle?”

“Can’t you wait one minute?” Her Mom pulled the cornbread from the oven as the timer went off. “Let’s have dinner first, I would love to hear about your day.”

They all sat down with their plates. After getting the first two bites down, Marie was glad she didn’t dive into the puzzle right away. “I didn’t realize how hungry I was.”

“The heat will do that to you.” Her Dad barely got the words out before the cornbread went in.

“So what did you do today?” Asked her Mom.

“Well, I sat in the sand and ran my fingers through the grains. I dreamt of huge beasts that roamed here and how the ground must have trembled with herds of them. I pictured huge predators romping and small ones sneaking. I might have even heard a giant dragonfly whiz by my ear.” Marie smirked at her folks. Her dark brown eyes scintillated with imagination.

“Well, that sounds like one great daydream.” Her Mom always loved to hear her daughter’s imaginings.

“Yeah, it was. Pretty neat how this used to be an ocean.”

“I know, and it seems that this site was more than just an ocean – it’s really a mystery. We have found unusual artifacts mixed in. It’s almost like someone built a stone box around some of the bones, which is impossible!” Marie’s Dad, Bill, was starting to get jittery with excitement.

“We might have some very interesting papers to publish with this one. There are really quite ground-breaking discoveries.”

“Cool! So can I see my puzzle *now*?”

“Sure, but let’s clean up dinner first.” Her Dad grabbed the plates as her Mom wiped everything down. Marie set to drying the dishes as her Dad finished rinsing. They hummed and sang as they cleaned up the kitchen.

“Alright, here you go.” He set the box in her hands and gave her a competitive nod.

“I’ll solve it. You’ll see.” The playful smirk ended in giggles as her Mom and Dad hugged and kissed her goodnight. Marie walked to her room with absolute anticipation for the box in her hands.

Her room was homey. No matter how many times she moved, there was a way about her that made everywhere home. She set the box down on her floor and started taking out the pieces.

“There has got to be at least a thousand fragments in

here.”

Her fingers perceptively fondled one piece at a time as she removed them from the box. At first they all felt identical to the touch. The pieces were all the same color and shape. Her hands started to pull the pieces out faster and faster, lining them up alongside her. Each looked completely identical.

Marie was a girl of exceptional sensory perception. It was both a blessing and a curse. At times it seemed like noises, lights, or people could be overwhelming. Other times a texture, taste, or sound could be complete serenity. Sitting in the quiet of her room, feeling dime-sized pieces of bone, and thinking through the textures, colors, and shapes was a time of serenity, a time of peace. Marie treasured solving math problems and puzzles.

She got to the bottom of the box. “There are 987 pieces! Biggest puzzle yet.”

“Marie! Are you still up?” Her Mom’s voice was sleepy.

“Yes, what time is it?”

“Midnight. Lights out. Love you sweetie.”

FIBONACCI FRAZZLE

Marie carefully placed the pieces to the side of her room and turned out the lights.

That night she dreamed deeply. She felt like she was able to be anywhere and everywhere at once. She dreamed she could harness the power of the stars. The ancient beasts in her daydream stomped around her to the beat of her heart. Numbers from her math books whizzed by on the wings of giant insects, while puzzle pieces marched to the same beat.

“Wake up, Arti!” Marie shot up in her bed with her Dad at the door. “Sleeping in this morning? It’s already seven.”

“Whoa, I was dreaming some crazy stuff. Guess I stayed up a bit late.”

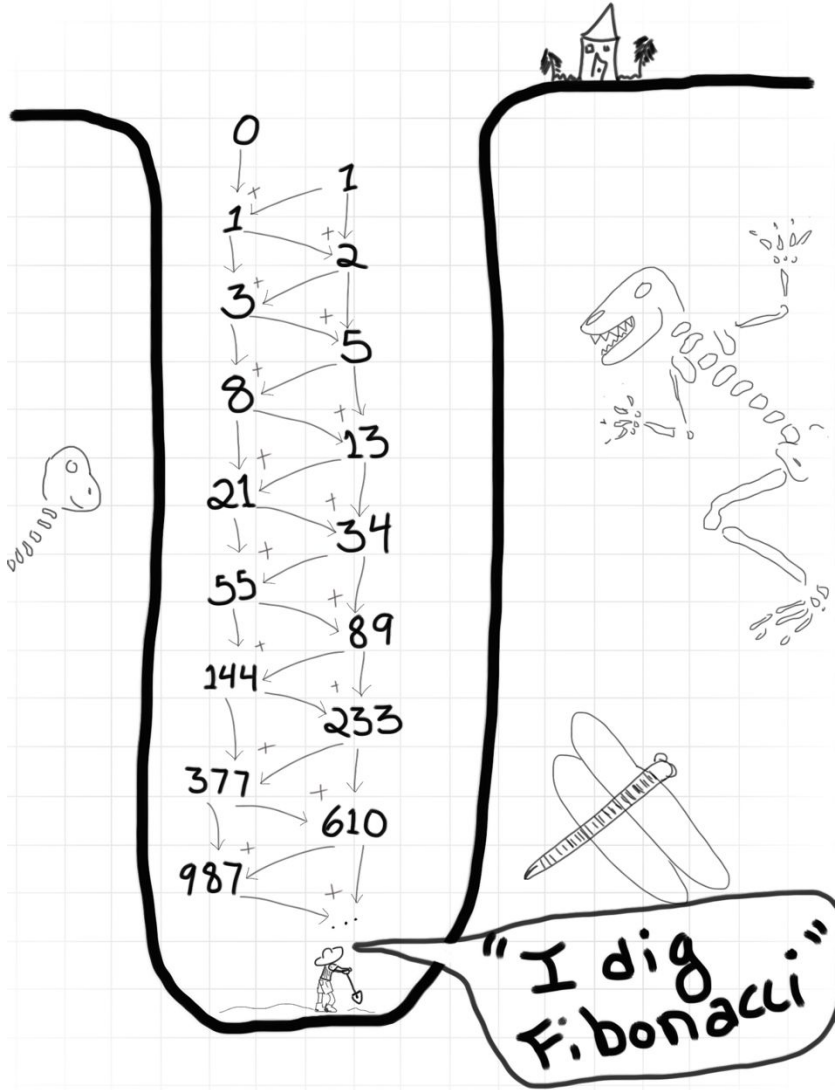
“Well your Mom and I are off to the site. Are you planning to work on the bones today?”

“Yes, There are so many. 987 pieces, a Fibonacci number!”

“Yeah, you and your numbers always perplex me. See you tonight. You’ll have to tell me about it later, we are getting a late start. Oh, and be careful, those pieces can be sharp.”

Marie pulled herself out of bed and got some breakfast. “Numbers, and stomping, and sunlight, and magic...” She contemplated the unusual dream over her cereal. “Pretty cool, Fibonacci numbers are always fun.”

Marie loved math. Everything about patterns and numbers got her attention. Fibonacci numbers were numbers that add together previous numbers to get the next one. You start with 0 and 1 and keep adding the answer to the previous addend. Marie started to doodle in her notebook as she shoveled in another bite. She added some words to her sketch “I dig Fibonacci,” and headed to her room, excited to continue on the puzzle.



She kept a small notebook and pen in her back pocket at all times, since she never knew when she would think up a great invention, comic, or solution. Writing her thoughts down helped her recall her ideas at other times. It was very

useful for problem solving, story telling, joke making, and other creative activities. Marie treated her journal almost like a close friend to divulge all of her secrets to.

The immense number of pieces was overwhelming. Almost a thousand piece puzzle with no discriminating characteristics – they all looked the same. Marie thought harder. She tried weighing them, and they were exactly the same weight down to the fraction of a gram (which in itself was perplexing). She tried piecing random pieces together, and had no luck. As the heat started to rise with the noontime sun, Marie’s patience was starting to wear thin.

“Argh!” A frustrated growl came from her lips. Marie was not just frustrated with the sheer number of pieces and their similarity, but with the fact that she didn’t want to be stumped. She had always solved each “job” and didn’t want to fail. As part of her sometimes-stubborn disposition, she wanted to know it all and solve it all and to be it all.

“Questions, questions, questions, it’s ok to ask questions...” She whispered to herself trying to remind herself that she didn’t know it all. “Questions, questions, questions, mistakes are lessons.” She was trying to keep calm, but it was too much.

“That’s it!” She flung herself, back first, onto her bed, still clutching one piece of bone between her finger and thumb. It was diamond shaped and white. She held it to her forehead and then up towards the ceiling light in her room. It

was then that she noticed the texture on the sides of the piece. Each side looked slightly jagged.



“Questions, questions, questions, what are these zig-zag-jaggity jags? They look like teeth. No wonder they are so sharp.” Marie started to make up a rhyme:

*“Teeth on a dinosaur,
Teeth on me,
Teeth on some gears,*

And teeth on a...

Springing from the bed, she brought the piece under a magnifying glass and lamp at her desk. “How did I miss this? These are like key edges.”

*“Teeth on a dinosaur,
Teeth on me,
Teeth on some gears,
And teeth on a...”*

“Key!” Scrambling over to the rest of the pieces she started to arrange them by how the jagged edges looked. Large zigs and small zags, they all went into sorted piles. She looked at the piles, pleased with herself. “Twenty one categories – another Fibonacci number. Very nice.”

She picked up two pieces that seemed to match and nudged them together. “A perfect fit. I can barely see the seam.”

Grabbing the pieces one by one, she put them together. What had earlier seemed an impossible task was becoming almost effortless. A spirally pattern, like pinecone shingles, took shape. The fragments started to form an ellipsoid-like dome. The contour reminded Marie of something.

“Oh my... I think it's an egg!” Marie turned the assembly around in her hands. It was like holding half of a rugby ball.

“Marie?” The front door opened. “We are home. What's for dinner?”

“Don't you mean lunch?”

“No, dinner, you're not going to tell me you didn't eat lunch are you?” Her Mom gave her a stern, yet understanding, glance.

“Oops.”

“Well, it's really hot today. How about some grapes, olive oil and bread?” Her Mom ran her fingers through Marie's hair and gave her a bear hug.

“Sounds good to me. I am starved. I started putting the fragments together and lost track of time.”

“I should have known. You get so wrapped up in what you are doing, but did you seriously get some pieces together?”

“Yeah, I think it's going to be an egg.”

“Wow, really impressive! I didn't think it would become anything. I don't understand how something can fracture into perfectly equal fragments. There aren't any known phenomena that would cause this sort of breakage. The team passed the pieces around and couldn't make heads or tails out of them.”

“It's really coming along, I would like to work on it after

dinner if that's all right.

“Sure. We are dealing with the Cretaceous Period, so it will be interesting to see what species it is, when you are done. The set was sealed in a stone-like box. Really peculiar.”

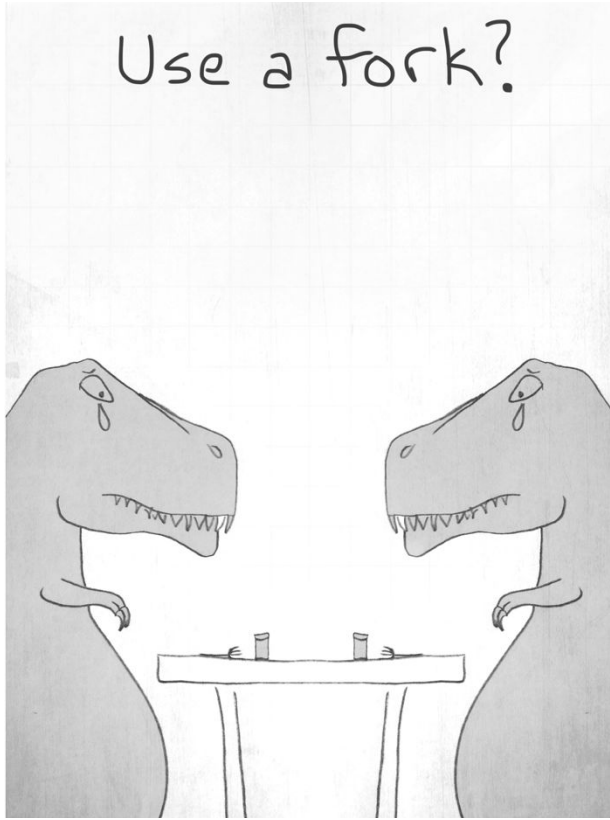
“Maybe it's a T-Rex egg and the Mom made the box. I can see her now, trying to close the lid with her little arms, and getting frustrated.”

“Ha, good joke sweetie! I can't reach my grapes.” Her Dad had come in and was now grabbing at the grapes with his elbows in his shirt mimicking the short arms of a T-Rex.

“Please, I can't get the cheese!” Marie pulled her elbows into her shirt and was laughing hysterically as she made fun.

“Help, I can't get the bread!” Her Mom barely got the words out of her mouth as she laughed so hard a tear rolled down her cheek.

They made the joke work for another minute or two before they all had to drink some water with the dryness of the air. Marie thought of a comic with dinosaurs and forks for her notebook:



“So...egg?” Her Dad leaned towards her and took one of the grapes from Marie’s hand.

“I think so, but I guess it could be an ancient rugby ball...”

“Cool, can’t wait to see. Maybe you can help write the paper for that one.”

“Sure. My favorite part is putting it together, though.”

Her Dad leaned in again for another grape. “So maybe you can help us figure out why stone formations that look man-made are mixed throughout the site? We can’t seem to

figure out why the stone artifacts date to the Cretaceous.”

“Maybe it’s because only a small portion of any of this old stuff is preserved. It’s not like everything that lived back then is around. Most of it rotted away, blew away, burned away, or washed away. Maybe it’s the norm, and you are just finding the first site that is like this.”

“Marie, your overwhelming optimism is an inspiration. Maybe you are right. Today was a long day. Lots of dust and lots of plaster...” Her Dad continued on with the day’s story, and Marie and her mother listened attentively. Her Dad always added animation and zeal to even the most boring of stories. By the end, everyone looked tired and ready for slumber.

“Goodnight Marie. I love you.”

“I love you too. Goodnight.” Marie hugged her Mom and Dad and went off to her room.

The fragments were sorted and ready for assembly. Marie couldn’t resist putting more together, despite her fatigue from a long day. She started to move quickly as she placed one piece in after another. The result was definitely an egg. She worked and worked until the last diamond-shaped piece fit in.

“987! 987! That is a lot of pieces. That is a lot of identical pieces.” She spun the egg resting in her hands and inspected every angle. A small hole at the top remained. “How did I

miss that?"

She went back to the original box and looked inside for any missing parts. She shook it gently and heard a rattle. "Ah ha, there you are." She grabbed a small sharp seed-shaped piece of bone. "It's not really another piece. It's like an embellishment or something. Interesting..." Carefully, she pushed the fragment into the hole. As she pressed it in, she felt a prick on her finger from the pointed shard.

"Ouch!" Her finger was throbbing. She went to go set the egg down, but it started to move in her hands. Slowly the egg spun on its axis and started to float above the palms of her two hands. As it spun, it scintillated and pulsed with infinite color and splendor. Faster and faster the egg spun. She was entranced with pure amazement of the wondrous object in front of her.

Perfectly still she stared into the sparkling light and started to feel a tingling sensation on her back, between her shoulder blades. It felt numb, and then tingly again, and then a quick sharp pain pinched the skin on her back. She would have yelped in pain, but the egg spinning before her was quite the distraction.

She stared for a few minutes more before snapping herself out of the hypnotizing effects of the egg. Realizing the significance of the situation, she felt a surge of adrenaline. She was able to take a deep breath to calm her rapid heartbeat. Marie started to assess her situation by doing a

head to toe check. She noticed that her eyes were changing. They were blurry, then itchy, and then they flashed with a bright light.

When she was able to see again, she noticed that there were more colors and shades of light than she had ever seen. Bees, butterflies, and sea creatures were able to see in more spectrums of light than humans. Marie could now see in more spectrums than any species on earth. Infrared, ultraviolet, and telephoto effects were just some of the changes. She noticed the details of everything around her.

Her new vision only made the object in front of her more amazing. The egg was defying gravity and spinning in the air. She started to see that there were symbols and patterns all over the egg. This led her to her next marvelous metamorphosis - she could read symbols she had never seen before.

The more she stared at the symbols on the egg, the more she understood them. Numbers started to become clear writings. Out of habit, Marie took the notebook out of her pocket and started writing the numbers that she saw:

1397

1497

1597

1697

She started to see how the symbols weren't just written, but that they were buttons that could be pressed. Inscribed around the egg was an instruction:

Choose correctly or all will be lost

Marie took the inscription seriously. At the same time she reflected on the state of mind. “Wow, my brain is changing too! Far out!” Marie’s eyes were wide with awe. She caught her reflection in her mirror with the corner of her eye. That is when her heart nearly stopped in shock at what she saw.

“W...W...W...WINGS...WINGS...I...I...I have wings!” Marie was dizzy with excitement and a little woozy with fear. Beautiful feathered wings had grown out of Marie’s back. They reached the ceiling and the floor. They were both rough and soft at the same time like reptilian bird wings that were as brilliantly colored as a phoenix. She stared through the dross on her mirror and saw pure magnificence.

The egg stopped spinning and landed in the palm of her hands. She didn’t have time to freak out about the wings on

her back. The buttons were clear in front of her. A new inscription appeared.

Choose now, time is running out

“Ok, ok, ok, 1397, 1497, 1597, 1697, what do they mean?” Looking into her notebook at the numbers she noticed that the opposite page had her Fibonacci comic on it. “Could it be?” Marie contemplated if the 987 pieces and the 21 piles were just a coincidence, or if they were connected.

Numbers could be a universal language or law of existence. The number 1 is the number 1 in any part of the universe, so is 2, and 3, and infinity. “Maybe Fibonacci numbers are part of a number language...” Marie thought about it. The last two numbers in her comic were 610 and 987 so that meant the next number in the Fibonacci sequence was the sum of those two.

$$\begin{array}{r} 987 \\ +610 \\ \hline \end{array}$$

Marie knew there was little time left. The egg was starting to dim. In her nervousness she was having a hard time

thinking straight.

“987 plus 610 is 1597. 1597! That's the next Fibonacci number!” Quickly, the correct button was pressed. The second that she pushed it, she got a flash of a vision. Somehow her mind let her see what *would* have happened if she had pressed the wrong number:

...the wrong button was pressed and the egg shattered into millions of pieces and then crumbled to dust in her hands. The wings disappeared and she fell to the floor in disappointment and sadness. An adventure had been lost...

She snapped out of it. “What was that? How can I see what *could* have happened? Thank goodness I chose the right answer!”

AIRLESS STRING THING

Marie's humble heart struggled to bear the immensity of the situation, but she was also brave and took a deep breath. She had no time to contemplate how she had seen the effects of her decision in a vision. The egg started to shine bright and change shape. And...it was getting smaller.

The finger that had been pricked earlier by the last piece started to throb again. When she looked down, her finger was glowing with the same light as the egg. She instinctively touched her finger to the egg that was now only the size of a ping-pong ball.

The egg responded instantly by going to the palm of her

hand and sticking to it. Marie gripped it and felt it pulse through her hand - to her arm - to her head - then to her heart. Deep down, she felt a primitive instinct. She had never felt an urge as strong as this before. The pull of this instinct stirred her very being to the core. She headed for the door with the egg tingling in her hand.

“I must fly!” Marie thought. “I must stretch these wings and fly! I must sail through the air! NOW!”

Marie couldn't get out of the trailer fast enough. Her entire body and mind yearned for flight. She stepped out the trailer door and stared at the glorious moon. It was beautiful. Rising moons in the desert look much larger to Marie than anywhere else. The moon looked like it would take over the entire sky. Marie took a deep breath of gratitude for the beauty and spread her mammoth wings.

Flight can't be fully imagined or truly understood by man. It's a primitive action, an urge to reach heights beyond human comprehension. Marie felt an overwhelming instinct to touch the stars that shine so brightly in the night sky down on the world. The changes in her vision made the stars, moon, clouds and earth all the more spectacular. She could see small desert camps, far off city energy, and indescribable lunar iridescence. Her entire being felt the energy of everything. She sensed the air currents, the rise and fall of temperatures, and the far off rising of the sun.

Sweeping high and low she spun, twirled, looped, and

sprinted with her wings. She felt the fire of an ancient phoenix, the burn of a dragon's breath, the ignition of a volcanic eruption in her shoulders and through her wings. It was glorious.

Marie was loving flying through clouds and over desert, mountains, and sea. After some time of mastering her new skill she looked up at the stars and felt another overwhelming instinct. "Up!" She whispered to herself.

The precise control of every shift in speed and direction pulsed through her. She swept from right to left and rolled around as she shot up through the layers of atmosphere. Her focus was on the stars. She didn't notice the passing of all the precious earthly oxygenated air. She didn't notice the cold vacuum of space around her. She didn't notice the blazing of the sun peaking around the earth. She just kept going towards the stars.

The lack of air, the immobilizing cold, and solar burn didn't affect her. She stopped for a moment in the soundlessness of space. She could only hear the beating of her own heart. She stared at the vastness of space and the immensity of the universe. With her vision, she could see the nebulas, stars, and galactic matter with a sharpness and accuracy that no telescope on earth could achieve. Pulsars and binary systems were as clear as words on a page to her. Light shows danced in every direction around her. The beauty penetrated every iota of Marie's being.

After thoroughly taking in her surroundings, Marie awoke from her contemplative state. In an instant, she panicked and nearly gasped for air before she realized that she didn't feel the need for it. She calmed down.

“How am I breathing? How did I move with no air? How am I not frozen or burnt? How? How? How?” She looked all around her and after seeing the sun and earth before her, she detached from that fear and panic. She felt utter peace. For a girl that often analyzed everything and looked at how and why things worked, she didn't even think in the vastness of space. She just accepted the present moment in amazement and gazed at all of the glory around her.

With this peaceful acceptance she felt the egg transform in her hand. This time she watched it compress and merge into her palm. Her hand and the egg were no longer separate entities – they were one. She looked at symbols that started to appear on her hand. A single word emerged. The name of the object that had become part of her palm was inscribed on her hand along with sand sized dots: *Atlas*.



The dots around “Atlas” resembled the stars that surrounded her. Marie lifted her hand and lined it up with the stars in front of her.

“It’s a map!” She carefully examined the clusters of stars in the sky and found them on her hand. She found Orion’s Belt, and then she moved her hand and watched the map change. It seemed to keep aligning to where she held it.

“Mars!” She looked at the red planet that did not seem all that far.

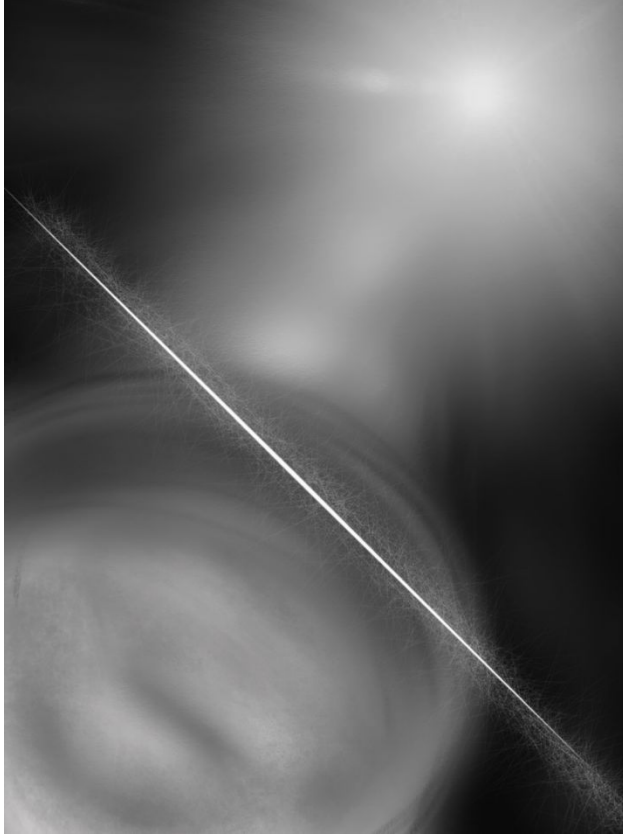
“Jupiter!” She saw so many moons orbiting the giant planet.

As she discovered the maps around her, she noticed the energy from Atlas. Somehow she knew that the Atlas felt the energy from her as well. The egg-like object wasn’t just a material item that bonded with her hand. Marie sensed that a consciousness had bonded with her hand and even her heart. This changing map on her hand was somehow *alive*.

Marie started to wonder what would happen next. In that instant Atlas illuminated points on the map in her hand. She zoomed into the galaxy that was highlighted and saw the spiral with her own eyes. It was further than anyone could imagine. She looked down at her hand and sensed that she could press it – like another button. She felt the immediate consequences of her action.

The small body of the girl started to stretch and change.

Atlas stretched with her. They were bonded. Her body grew taller and taller and thinner and thinner. She was taller than a tower, then longer than the United States, then as thin as a hair. She was transforming into a string of particles. She looked like a single stream of light.



Marie couldn't see what she was with her own eyes, but somehow saw with her consciousness. She knew that she was as thin as an atom and being stretched through space. She was shooting through vast distances at immeasurable speed. Magnificent colors, energy and wonder whirled by. Marie

sensed galaxies, planets, stars, and great voids of emptiness as she passed by.

Then, for what seemed like a second and an eternity at the same time, halted. Marie's body gently transformed back into its previous state, along with Atlas' warmth in her hand.

Looking around, Marie tried to get her bearings. There was a large brown planet below her and an unrecognizable star system around her. No constellations were familiar to her. Ursa Major, Orion's Belt, Seven Sisters, Andromeda, Great Bear, Lynx, Cancer, or any other familiar celestial body wasn't there. When she saw the red giants and white dwarfs that were close by she knew that she was in the galaxy that she had pressed on her hand. Atlas confirmed her thoughts on the matter with a warm pulse.

She looked down at the closest planet and studied its details. Calmness seemed to seep into her heart from the silence of space around her. She was able to concentrate and really study what was in front of her.

"Look! There are ruins on that planet." Marie spoke to herself. Her lips moved but the sound didn't form with the lack of air.

"LET US GO DOWN THERE" Atlas responded with symbols on her palm.

"You can hear me?"

"YES"

“You are alive?”

“I AM CONCIOUS”

“How can you hear me?”

“THOUGHTS”

“My thoughts?”

“YES”

Marie was surprised, but somehow this confirmed a feeling she had had (an intuition). A relief came over her, for she was joyful that she wasn't alone. Atlas was her companion in the limitlessness of space.

“COME ON, GO”

“Well, I suppose we should go down” She thought and smiled at Atlas.

“YES”

“So cool, you can read my thoughts.”

“YES”

The two companions in adventure descended through the thin atmosphere of the chocolate colored planet. Marie's wings seemed to carry her through space and thin air at the same speed and ease. She started to realize that her source of energy for flight was not related to airlift and propulsion the way birds fly. She felt her wings absorbing the light and energy of the stars nearby. Her wings were like solar panels and propulsive energy all in one. The feathers soaked up rays

of light. The star that the planet orbited gave her more energy than the sun at home had. It was a brighter star.

“I can soak up the energy of stars to fly?”

“YES”

“Wow” She whispered, as they got closer to the ground.

“THERE”

Marie looked where Atlas tried to get her to see. There in the distance was a large rock formation. Marie spiraled in joyful flight towards the rocks. They landed on a stone platform supporting ancient remains. An enormous candy bar shaped monolith stood on its end before them. It had to be at least three stories high.

“Look at all the symbols.” Marie noticed millions of inscriptions on the stone face. The complexity of it was mind-boggling. She ran her hand on the surface of the stone. Instantly the symbols began to move and become illumined. Atlas pulled her hand towards the stone again.

“No!”

“IT IS OK”

“Why are you pulling?”

“IT’S WHAT I DO”

Her hand touched the stone again with Atlas touching the rock. The symbols moved faster. They swirled and gyrated. Some seemed to orbit others and pulse. It looked

like an entire universe in motion. The symbols had so many different colors and energies that Marie could hardly process them. There were even large black voids of nothingness that seemed to circle and flow between the points of light.

“LOOK CLOSER”

Marie concentrated on one of the symbols and realized that they were all numbers. “Numbers?”

“UNIVERSAL”

“So they are a language?”

“YES”

“And you speak it?”

“WE DO”

“Huh?”

“WE ARE LINKED”

“Huh?”

“FRIEND” Atlas reassured Marie. “WHAT YOU DO, WE DO”

“So, not me, but we?” Marie felt the warmth of the word “friend” in her heart.

“YES”

“Why?”

“IT'S WHAT I DO”

“So I can speak in numbers. I mean *we* can speak in numbers. Friend, my friend, what is all of this?”

“PUZZLE”

Marie started to study the symbols. Out of habit, she took the pen and notebook out of her pocket and jotted down the numbers and symbols in front of her that were posing a puzzle. The last was a question mark:

2

3

5

11

23

?

“What’s the question mark for?”

“FILL IN THE BLANK”

“They are all prime numbers, but some are skipped.” Marie remembered how there was a special set of numbers called “prime” that were only divisible by one and themselves. The prime numbers rolled through her head. “2, 3, 5, 7, 11, 13, 17, 19, 23, ...”

“THINK”

“But the numbers on the stone are only 2, 3, 7, 11, and 23!”

“AND BLANK”

“Maybe it’s a special set of primes...a subset?”

“MAYBE”

“Don’t you know?”

“IT’S WHAT YOU DO. THIS IS YOUR TASK”

“Oh. Ok.” She thought hard of her math books and lessons. One of her favorite mathematicians was Sophie Germain. She started to remember how Sophie had her own set of primes.

“REMEMBER”

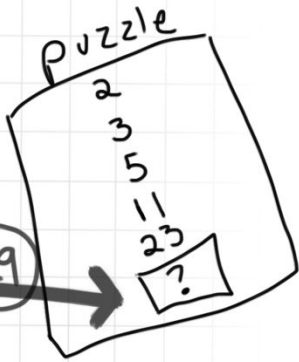
“I’m trying! I think it was something like $2 \times p + 1$ where p is a prime number. Marie hastily jotted down in her notebook. She thought through the sequence:

A prime number is only divisible by 1 and itself.

primes $\rightarrow p = 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, \dots$

Sophie Germain Prime means that " p " and " $2p+1$ " are both prime.

p	$2p+1$	Are both prime?	\leftarrow If yes, then it's Sophie Germain!
2	5	yes ★	
3	7	yes ★	
5	11	yes ★	
7	15	No	
11	23	yes ★	
13	27	No	
17	35	No	
19	39	No	
23	47	yes ★	
29	59	yes ★	
...	



“29! That’s the next prime number!” Marie hoped that she was right about the numbers being the Sophie Germain Primes.

“LET’S TRY”

“Yes, yes, ok, so here it goes.” She was nervous with excitement. Her hand shook as she traced the symbol for 29 onto the stone. She loved knowing another language. She savored the adventure. She anticipated what would happen next, but then she had yet another vision (a dream):

...she traces the wrong answer in the stone. The rock crumbles to dust. Atlas dims. Marie is brought back home the same way she came. She sits in her room in tears, wishing the adventure had continued. Atlas fades in her hand and disappears. She cries, because her friend is gone...

“Did you see that? Did you see the vision I just had?”

“YES”

“What was that? I got the answer right, so how did I dream about what *would* have happened if didn’t?”

“IT IS A DECISION TREE”

“So that’s what would have happened if I didn’t answer 29?”

“YES”

“So I can see the future?”

“NO, JUST WHAT COULD HAVE BEEN”

“So I can’t see my future, but I can see an alternate future. It’s like seeing the consequences to my actions after the fact! Why did I see my decision tree?”

“IT JUST IS. IT IS PART OF YOUR ADVENTURE”

Marie didn’t understand her ability to see an alternate future for a decision that she didn’t make. “How is that useful? I can’t see my future, but I can see the future if I made a different decision!”

“IT MIGHT BE USED”

Marie was about to respond, but the stone’s symbols stopped moving and the whole monolith started to glow. Marie sensed that something big was going to happen.

“GET READY”

“If only I could see what’s *going to* happen!” The rock face grew and grew and then started to create a swirling vortex. It looked like a drain sucking down the dishwater. Marie felt the pull. Gravity, energy, suction, tugging, the swirl grew larger than a football field.

“HERE WE GO”

“Here we go!”

Marie and Atlas were pulled right into the vortex and felt themselves stretched into a stream of particles again. Swiftly,

they were shot back into their original form. This time they didn't arrive in the void of space. A jungle with trees (that stood like city skyscrapers) was all around them. Leaves were bigger than cars. Fungus grew on everything and in every shape, color, and texture.

“Whoa, what a jungle. I don't know if I will ever get used to that mode of transportation.”

“YOU WILL. I AM”

Marie took a few deep breaths to center herself and then opened her eyes to the new planet.

KOLOS

The forest smelled of life. There were fragrances of flowers and odors of decay. The intimidating size of the trees made Marie weak in the knees. She felt the pressure of everything giant around her, like being squeezed by a fist. She took another deep breath.

“Where are we?” Marie’s eyes were still looking all around in wonderment. Purples and oranges seemed to be everywhere from the unique atmosphere of the planet. Humidity flowed in misty clouds between the trees.

“HERE. WE ARE HERE.” Marie looked at Atlas. A map of stars was on her palm that extended on to her wrist. Atlas highlighted Earth in blue and the current planet in green. A swirling black hole of the Milky Way was between

the two.

“We are all the way across the galaxy! How can that be? Light doesn't travel that fast.”

“YOU'RE NOT LIGHT”

“But across the galaxy?”

“AT LEAST IT IS THE SAME GALAXY.” Marie looked down and Atlas showed her that the last location was not in the same galaxy.

“Ok, wow, um, that's it, I'm dreaming.”

“NO, BUT THAT WOULD BE SOME DREAM”

“Yeah, no kidding.” She felt her body shake from her feet on up. “Maybe I should sit down. I am feeling a bit jolted.”

“IT'S NOT YOU.” Marie felt her body shake again, and this time she heard a loud thump.

“Huh?”

“SHHH”

Another thump shook the ground and quaked up Marie's body. Her heart started to thump with each shake.

“*Thump, thump, thump...*” the floor of the forest shook. It seemed like the entire jungle quaked with fear.

“It sounds like....”

“FEET. SHHHHHH”

Marie knew that Atlas was right. Something big was

approaching them. With each thump the quaking got bigger. Marie thought fast and scrambled underneath a leaf that was as big as her house.

“Thump, thump, boom, boom, boom!” Then the sound stopped. Marie started to panic. The sultry jungle wasn’t dry like the deserts she was used to. Between her fear and the wet heat, Marie was soaked from head to toe with sweat pouring out of every pore. She quietly calmed herself enough to peek through a small hole in the leaf. Within a meter of the leaf that Marie was under stood a large, scaly foot. Small feathers poked out between the scales. The talons or claws that the foot carried were almost as big as Marie. It wasn’t a recognizable foot from all of the dinosaurs that she had seen over the years.

“It’s bigger than a Spinosaurus” Marie thought trying to inform Atlas.

“Shhh!” Atlas had nothing more to say.

A large snout descended from above and started wafting the air around it. It was sniffing for something. The reptilian creature started to overturn plants and twigs all around Marie. The large nose was next to the large teeth below it. Marie held her breath as it sniffed closer.

“I think it smells us,” Marie thought to Atlas.

“SHHH!” Marie was wondering why Atlas kept telling her to be quiet. She wasn’t making a noise when she thought,

so why on earth (or wherever she was) did Atlas not want her to think? Last time she checked, thoughts were silent. Regardless, Marie trusted her friend and she quieted her mind.

The large olfactory sensor (sniffer) came right up to the leaf that they were under. It took a large inward breath and pulled the leaf off of them. It puffed it off to the side and sniffed the same place again. The sharp-toothed scaly giant brought its nose close enough to Marie that her hair was pulled straight up to the creature's nose when it breathed in again.

“SHHH” Atlas knew she was going to freak out. She calmed herself again and stood still. She was terrified. The smell of the musty, dank, reptilian odor was pungent. Marie remained motionless as the nostrils moved to her wings. She was doing her best to be still in hopes that she could avoid becoming the creature's lunch.

Things turned for the worse. The gigantic beast opened its jaws. Marie couldn't take it. She didn't want to be sitting still while she was gulped down and digested. She raised her arms up to protect herself as the beast lowered its head to hers. Atlas was going to be the first to go in the heavily armored mouth.

The beast froze the second that Atlas was raised in its direction. It took a step back and turned one of its eyes to Marie and inspected her raised hands. Atlas was beaming

with solar brightness towards the being. Atlas didn't want to be eaten any more than Marie did.

Slowly looking up, Marie took a deep breath and saw the beady eye staring at her. This eye was far less threatening than the teeth and the stomping feet. Atlas dimmed its light and Marie glanced at her hand.

“HE CAN HEAR YOU”

“Hear me? She thought that it would just be fitting if everything on this adventure could read her mind.

“Maybe not everything.” The creature talked to Marie with his thoughts. “I can hear you. Where did you get it?”

“Get what?” Marie couldn't figure out what he was talking about. Her nerves were still completely shaken after nearly being eaten alive.

“Where did you get The Atlas?” His nose nudged her hand gently.

“My home. My people found Atlas in pieces and I put the pieces together.”

“You? A child?”

“It was just a puzzle. Kids do puzzles.”

“Kids don't do this type. You solved The Atlas. That is a noteworthy accomplishment.”

“**QUITE A FEAT!**” Atlas knew how hard it had been for Marie to figure out. After all, Atlas was there.

“Do you know what The Atlas is?” The eye staring at Marie flared with curiosity.

“Well it started as an egg in my bedroom.” Marie wasn't sure what he was getting at.

“You must learn the story of your companion. We must go.”

“AGREED” Atlas wanted Marie to learn the origin. Marie felt the feelings of her friend's desire. She agreed to go.

“Please, tell me.”

“Not here, for we must go to the ancient ruins. The beast started to move. “Can you fly?”

“Yes.”

“Please follow me. We have a vast distance to cover. You have come just in time. We have been waiting. My name is Kolos, welcome to the planet Maneo.”

Marie rose up above the jungle's canopy. The layers of forest were thick, but manageable. Kolos ran through the forest below. Marie was able to follow him by watching the trees sway and the ground move around Kolos as he sprinted. It was hard for her to keep up; her new friend was faster than her even though he had a thick jungle to run through.

After an hour of flight, the canopy slowly changed into massive plains. The grasses were like an ocean of purple and orange waves. Every breeze seemed to make the entire

ground dance like a fire. The scenery was majestic. Two stars were bigger than the sun. One was a red giant that gave of a warm glow. The other was a white star that was much smaller, but somehow brighter. Looking around her, she was able to count seven moons. Some took up a large portion of the sky. On one of the moons Marie saw volcanoes billowing smoke and lava.

The binary star system was why Marie was seeing so many new colors. It's a solar system that has two stars, and the system that Marie was in had two different types of stars. The light and energy were so different than her home. Her enhanced vision created optical bliss. The warm wind blew her hair and feathers in a tranquil rhythm. Kolos continued on. Marie was getting tired.

The grassy plains transformed into a desert of yellow and red sands. The desert ended at a florescent blue ocean. Marie had flown for what seemed like days. Her exhaustion was obvious. Even though the binary stars had kept her wings and body energized, she was in desperate need for sleep. Kolos finally stopped on a rocky peninsula that jutted miles into the sea. There was an array of cliffs and caves stretching as far as the eye could see.



Marie glided down and landed next to Kolos. She gave him a very tired smile. Atlas was dormant. The energy had been drained from every ounce of Marie by the long voyage across the planet.

“Did we cross your planet? So far, it is so far.”

“No we went about an eighth of the planet’s circumference.”

If that was true then Maneo was many times bigger than earth. Marie was astounded at the size.

“You need to rest. You must be energized in the days to come.” Kolos picked Marie up with his tail and placed her on

his back. “Here, come with me and rest, child.”

Kolos carried Marie into a large and deep cave along the peninsula. Marie noticed the darkness starting to surround her, but didn’t know if it was just herself drifting to sleep. Before she knew it, she fell into a deep slumber as Kolos continued into the darkness.

Miles of craggy caverns stretched in all directions. Deep into the planet’s surface they walked. Dismalites lit up the walls of the tunnels. The tiny glowworms made the walls look like they were slowly moving around them. Bioluminescent plants gave off hues of orange and purple.

Footsteps could be heard as they went deeper. Kolos was pleased to hear them. He had called an assembly together before he knew of Marie’s arrival to address a severe threat that the planet was going to encounter. It comforted him to know that the assembly was arriving. Now he carried hope on his back in the form of a small winged girl.

The tunnel he was in merged with many others like it into a large cavern lit with crystalline structures that glowed with every hue of light. The room was big enough to fit a thousand Kolos-sized beasts inside. Hundreds of various reptilian beings were coming into the meeting place. There were big, small, fat, thin, feathered, slimy, bright and dull varieties. Every dinosaur fossil discovered on earth would barely portray a handful of the beings in the room. Bones from Marie’s desert didn’t do justice to what giant reptiles

were really like.

Kolos carried Marie's sleeping body to a small bed of moss next to the wall. She didn't stir a bit, for her slumber was deep.

A small nimble iguana-like creature covered her with a grass woven blanket. Another salamander-like being carried an orb of the most unusual material over to her. A third creature that looked like a puffball of feathers came over and laid Marie's hand on the orb. Atlas awoke. An energy connection was created between Atlas and the orb. Marie began to dream. The orb was able to tell Marie the story of Atlas' origin. It did this in the same way that dream would give a sleeper a story, but in a poet's format.

Verses ran through her head with pictures and paintings of the utmost beauty:

*The woman carried the seed through
the fire of nature.*

*She swam through torrential
downpours of ocean from above and
below the depths of creation.*

She climbed peaks that scaled the

existence of ascension.

The seed stayed so very close to her.

*She knew she must save it and
deliver it into a new age.*

*Finally, she crossed the plains of time
and found a nest of galaxies.*

*This would keep the seed dormant,
yet alive.*

*She couldn't have made it for a
second longer as she vanished on
the winds of change.*

*The seed nested in a galaxy of
galaxies,
they swirled around an orb of light
and dark.*

*The seed pulsed with symbols of
numbers and curves, lines and*

dimensions.

*As the symbols refined into meaning,
the seed began to shrink.*

*Smaller and smaller it contracted,
still containing its immense power
within.*

*It slipped into one of the galaxies as it
minimized.*

*It slipped into a star system with
planets.*

*It got caught in the pull of the third
planet's gravity well,
falling into the ocean of the planet.*

*The seed stretched roots into the soil
around it,
growing structures of stone.*

Large monoliths and edifices formed.

Time passed.

The ocean dried.

The roots dried.

The structures crumbled.

*The seed sheltered itself into a stone
box.*

Deserts formed and the seed dried.

It shattered into a riddle.

*The **one** who solves the riddle shall
know Atlas.*

*The **one** who knows Atlas will
become a hero or a tragedy.*

*The **one** will feel the encumbrance of
their mission.*

*For Atlas brings a new knowledge
that will leave the **one** changed
forevermore.*

COSMOS

Marie awoke to Kolos' snout over her head. The hot breath somehow felt good in the cool cavern. Atlas also provided warmth in her hand. Her dream was so vivid she started to wonder if it could somehow be true.

“THERE IS SOME TRUTH IN ALL DREAMS”

“This one?”

“METAPHORICALLY”

Marie felt from Atlas that the dream of origin was the best way for her to understand. She knew much of Atlas was a mystery.

“Who is the woman? What's the changing of ages?”

“ALL IN THE PAST”

“What’s the mission? What about ‘*encumbrance of their mission*’?” Marie was worried since it meant that there would be a burden to bear. What hardship would she have to endure?

“THAT IS PRESENT. WE HAVE A MISSION”

“What is the mission?” Marie was excited.

“TIME WILL TELL”

“So what are you? A seed? Not an egg?”

“YES. WE ARE”

“I am Marie and *you* are Atlas!”

“KOLOS KNOWS WHAT WE ARE”

Upon hearing Marie trying to understand Atlas, Kolos knew he must help. “Marie, Come with me.” Kolos gestured for her to come into a side room of the cavern. She walked slowly through the stone arch into an ancient chamber. The orb sat in the middle of the room on a crystal pillar. Marie approached it.

“What’s it made of?” She was amazed at the energy that the object seemed to project.

“A material so rare that it has no name. We know it only as the tear of a star.”

“Tear? Stars don’t cry.” Marie was confused, but felt bad that she had corrected Kolos. “Sorry, I didn’t mean to say it’s

not.”

“It’s a metaphor, my child. Stars would cry with the tragedy that has been written among them.”

“Tragedy?” Marie knew that a tragedy wasn’t a good thing. It usually ended in utter sadness, failure or despair.

“Long ago there were seeds like Atlas everywhere. They were sent to planets to grow. Wherever one of these seeds was planted, a flower would bloom. Each flower would produce a story.”

“Story?”

“Yes, and each story would either be a tale of heroism and glory or a tragedy of loss and sadness.”

“Oh, so nothing between good or bad?”

“No. Once the flower started its story then a potential hero would be chosen. If the hero succeeded against immeasurable odds and truly passed the tests, then the flower would thrive and pollinate. More seeds would be created and spread throughout the universe. Galaxies would have an abundance of glorious tales of struggle, conquering adversity, joy, and accomplishment. Heroes would be born.”

“What happens with tragedy?”

“Well, with tragedy, no pollination would happen and the flower would wither and die. It would be the end of that strain of flower.” Kolos looked sad as he spoke.

“Wow! So epic stories grow from these seeds and

produce heroes or tragedies.” Marie was joyfully curious.

“Yes”

“So what about the tear of the star?”

“The stars cried when a wave of tragedies struck the universe. Every hero that the flowers chose could not accomplish their mission. They were all given a series of tests and none of them passed. The planets and beings that depended on them perished, declined, or disappeared. For centuries heroes have been absent from many regions of existence.”

Marie was anticipating that the “hero” chosen was going to be her. She was nervous, honored, anxious, and enthusiastic at the same time.

Kolos continued, “Atlas was the last of its kind. A new age was coming and the seeds of the ancient times had become nearly extinct. Atlas was to go and be planted to spread more seeds throughout the galaxies. Somehow it ended up on your planet. The timing wasn't right and Atlas shriveled in an ocean that dried up.”

“So how did Atlas survive?”

“YOU!” Atlas chimed in. Marie felt the friendship.

“Atlas could not bloom and carefully chose a hero when the ocean had dried. Instead, The Atlas created a riddle. Whoever solved the riddle would be chosen to bond with Atlas. Together, they would be the universe's last chance for

a hero of this nature.”

“There are heroes on my planet, so how is this true?”

“The type of hero that a seed chooses is not your typical hero. They are of universal importance. Many galaxies benefit from this type of hero. The seed gives the chosen one special powers that will help them succeed in their quest.”

“So my wings and eyes? Or my ability to read the strange symbols?”

“YES”

Kolos was surprised. “You mean your species doesn’t have wings like yours? Your wings are the only things I understand about your anatomy. Your pink soft skin looks very vulnerable.”

“Ha! I suppose that would be the case for this planet. I haven’t seen any mammals.”

“Mammals?”

Marie didn’t want to stray from the topic. “Never mind.”

Kolos placed the tip of his tail on the orb sitting in front of them. “Marie, put Atlas on the orb. Let us see what has happened and what is to be. Normally a flower endows a hero with powers and assigns the quest. In your case, the flower has bonded with you. Are you ready to know your quest?”

“Ok, I’m ready.” Marie placed her hand on the orb.

“WE'RE READY” Atlas corrected her.

“Yes, *we're* ready.”

Kolos saw all that had happened from the day that Marie received the box of pieces. He saw the jokes at the table about the T-Rex, the Fibonacci puzzle that she had solved, and the Sophie Germain primes. He was able to see that Atlas was no longer a separate flower to produce the hero. Marie was one with Atlas. Marie was a flower, a Cosmos flower. She was of the chosen heroes to either pass or fail - a hero of universal importance. Marie and Atlas would either become a hero together, or they would perish together - nothing in between. Marie was able to follow everything that Kolos saw.

“Come, you must learn your quest.” Kolos ushered Marie into the main cavern.

“So, I am a flower?” Marie asked as they walked.

“Yes, a Cosmos! Together you and Atlas are Cosmos.”

“COSMOS” Atlas reassured Marie.

The crowd split as Kolos and Marie walked to a stone platform in the middle of the cavern. Crystals beamed light all around them. Marie saw the faces of diversity and unity before her as she climbed up the platform. Kolos stood before everyone and waved his arms to draw attention. There was no need for him to do so, since every single set of eyes was already on him and Marie. The room was silent.

“Friends, thank you for coming. We know that our time on Maneo is coming to an end. A threat that has come before has now returned and we have accepted our fate. Even though a hero was in our prophecies, we gave up hope because we knew that the seeds and flowers of the past were all gone. Without a hero we only knew hopelessness.”

Everybody nodded in agreement as Kolos spoke in a somber tone. Marie watched, and felt an immense pressure in her stomach as Kolos talked. She knew that something big was coming, and wanted to hide back home under the covers of her own bed.

Kolos continued after a long pause. “Friends, we did not stay steadfast to the prophecy. A hero has come to us. Cosmos, a bond between Marie and Atlas, has come across the galaxy to save our planet. From a planet of sea and land and a single star, they have come to save ours.”



Marie's stomach went from immense pressure to downright knots. "Me a hero?" She whispered to herself.

"WE"

"We are going to save the planet?" She thought to Atlas.

"YES"

Kolos sensed their thoughts and nodded his head.

"Come Cosmos! Come and speak to our people!"

Marie approached where Kolos stood. A deep breath, a slow swallow, and clinched fists helped her find the courage to go up and speak. "I am here! Atlas is here! We are here! We will do our best to persevere and save your planet! We are here!" Marie didn't know what else to say. She was afraid to think anything more, since everyone could sense her thoughts. She didn't know what possessed her to tell

everyone that she would save the planet. Atlas reassured her that she did the right thing.

“IT IS OUR MISSION”

The chamber filled with rejoicing and happiness. Marie’s heart beat with the same happiness. Kolos gave some last words and then took Marie down to another room of the cavern. The sounds of cheer and joy echoed as they exited the room.

They entered a room that was filled with paintings that told of the world’s history. Marie was amazed in the detail of every little event that covered the walls. She walked from the panel showing the creation of the planet, to the panel where life started to grow. Then she followed the civilizations of Maneo. As she approached the last panel, she recognized herself flying above the plains with Kolos below.

“That’s you.” Kolos reassured Marie as she stared at herself.

“Wow!” Marie was astonished that she had already made the wall. “So what next?”

“LOOK!”

Marie looked at the blank panel next to the one of her. It was starting to fill in with a painting before her eyes. A view from space of Maneo started to appear. Slowly the binary stars also appeared. The planet was under great stress and was being torn apart in the picture.

“What’s happening?”

“That is why you are here.” Kolos began to explain their peril. “The planet is part of a binary star system. It has reached a point that it will pass between the two stars. Maneo orbits in a figure eight around the stars. Every twenty thousand years, the planet passes between the two stars. Both of the stars will pull on the planet with their great gravity forces. The last time this happened, an ancient civilization had created a device that somehow kept the planet from getting pulled apart.”

“So the stars play tug-o-war with the planet?”

“Huh?”

“Sorry, I forgot that it’s an Earth game.”

“CONTINUE”

“If you mean that both of the stars pull at the planet, then yes, they play ‘tug-o-war’. The problem is this: the device is lost. The ancients are no longer here, they left no instructions on how they saved the planet, and they didn’t tell us where the device is.”

Marie walked over to a painting from 20,000 years earlier. Before her, stood a depiction of teamwork, science, hardship, anxiety, and victory. Somehow the planet survived the pass between the stars. In the painting, it appeared to almost be in a bubble. A device was shown, but it was not clear. It showed five steps and then a massive tower. The painting was

abstract and gave no details for Marie to see where the device might be.

“Is there a name for this device?”

“Yes, here is the ancient symbol.” Kolos pointed to the painting and circled a symbol with his finger. “The language is long gone.”

Marie stared at the symbol and realized that she could read it. “It’s called ‘Impetus’ and it seems to be related to the five steps. She continued to read the symbols around Impetus and saw that the five steps lined the path to get there. Each step had its own name. Marie carefully read each step. “The first step says...it says... ‘Courage!’”

“THE FIRST TEST” Atlas knew that the steps would be difficult.

“The second is ‘Steadfast.’” Marie blew some dust off of the writings to see them better. “The third is ‘Detachment.’”

“KEEP READING” Atlas could feel that Marie was straining to read the ancient symbols.

“The fourth is ‘Peace’ and the fifth is... the fifth is ...” Marie was having a really hard time making out the last step.

“YOU CAN DO IT”

“Eureka! The fifth is ‘Trust!’” Marie sat down on a rock and took a deep breath. “Courage, Steadfast, Detachment, Peace, and Trust!”

“We think that the first step is through the eye of the

storm.” Kolos had been part of the scientific teams that had tried to find where the ruins were that would aid them. They had stopped their effort when they could not pass through the eye.

“Eye? Storm?” Marie was sure that it sounded ominous.

“Beside me are Rex and Syn. They are friends and know this planet well. The ‘Eye’ is a day’s journey. They will show you the way.”

“Are they coming with me?”

“Only to the ‘Eye.’”

Marie felt a type of fear that was beyond words. She felt the fear of failure. If she didn’t get to the Impetus then she would be a failure to an entire planet. She wanted to pretend that none of this was happening, but then she started to feel the urge to be a hero. “Heroes don’t hide, they try.” She thought to herself. She wanted to succeed.

“TRY”

“I will do more than try, I will succeed!”

Kolos, Rex, and Syn all smiled with her words. “Cosmos! Cosmos! Cosmos! Our hero flower!” They cheered.

Syn came over to Marie and sat on her shoulder. Syn was a small, quick lizard that reminded Marie of a miniature komodo dragon. She was beautifully colored with iridescent scales of blues, reds, purples, and yellows. Syn gave Marie a sense of friendship and love.

Rex was a large flying reptile that didn't resemble any fossils Marie had seen on Earth. His wings were almost like fish fins that let him swim through the air. For his size, he was extremely light. He moved quickly and silently through the room.

“Well, let's go see the storm.” Marie figured any delay would just give her less time to do her tests.

“Can I ride on your shoulders?” Syn was comfortably sitting on Marie.

“Yes! Let's go!”

Rex smiled and led them out of the cave tunnels, back out into the beautiful daylight. He moved with a smooth motion, while Marie glided gently next to him. Going from the subterranean tunnels to the ocean air was refreshing. Marie thought how beautiful the planet was. Its colors and smells were all new and incredible to her. There was a saltiness to the smell that reminded her of oceans at home.

“LIGHT!” Atlas loved the energy that was now being absorbed into Marie's wings.

Syn started to touch Marie's neck with her finger. She poked and rubbed until Marie burst out in laughter.

“What are you doing? That tickles?”

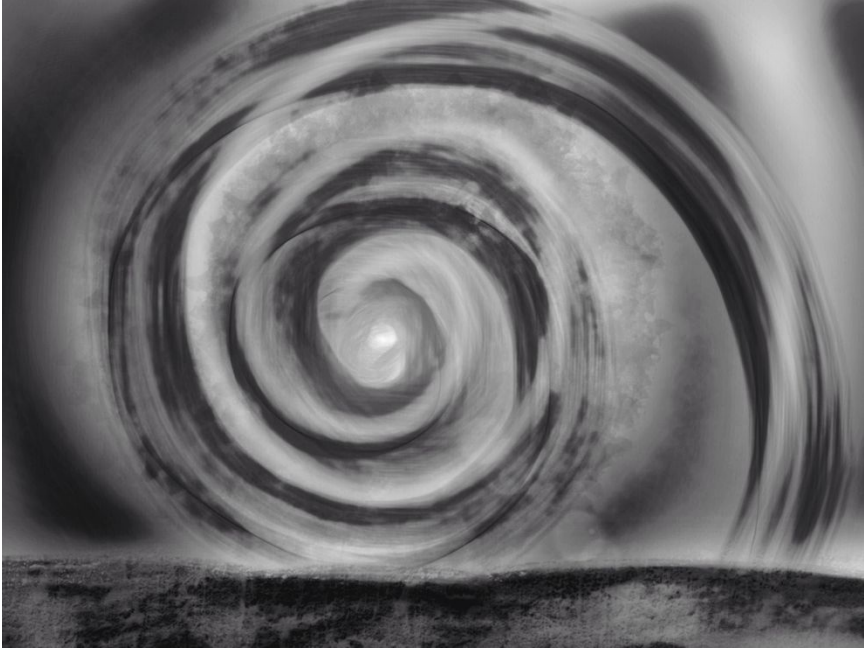
“Your skin doesn't have scales! It's soft and smooth, and very different. Your wings are more like us, but your body is very soft.”

“It’s how all people are on my planet. We do have creatures like you, though. They aren’t the same, but have similar scales and build.”

Marie continued on through the beautiful sky around her. She was overcome with gratitude for the adventure that she was on. It was truly exhilarating. Atlas’ presence added to her thankfulness, for she had a friend and companion that understood her.

“BLESSED”

They all turned south and headed towards the storm. After half of the day, Marie was able to see the eye of the storm. It was so similar to the hurricanes on earth, but also very different. Instead of moving around the ocean like hurricanes, this storm stayed in place. And instead of twisting so the eye of the storm points down, the storm in front of Marie was standing on its side. She could see straight through the storm. It was like a gigantic swirling wall with a single hole that she could see right through.



“It’s a sideways hurricane!” Marie was amazed at the size.

“BIG”

“How will we get through the eye of that storm?”

Syn looked at Marie. “You must be courageous, my dear friend.”

Marie gulped a lump of fear down from her throat to stomach. “We can do this.”

“WE ARE COSMOS”

COURAGE

“Let's stop at that island down there and rest. Tomorrow, you will go through the storm.” Rex led them down to an island with stone formations all around.

“Where does the storm get its energy to turn on its side like that?” Marie was curious.

“We have gravity, spin, moons and stars that create vortexes of mystery all over the planet.” Rex loved science. “This storm is unique even for our planet. It has been here for at least 20,000 years, and is powered by mysterious forces that only the ancients understood.”

When they landed on the island, Marie felt that they

landed out of fate, or Atlas' guidance, or Marie's intuition. There were stones with writings all over them. Marie recognized one of the symbols.

“COURAGE”

“This is the base of the first step.” Marie gazed up from the stones and stared into the eye of the sideways cyclone.

“Kolos said the step was through the ‘Eye!’” Rex was confused.

“He said he thought it was, but it seems that from these symbols the storm itself is my first test.”

“COURAGE”

“Atlas keeps saying ‘courage,’” Syn pointed out, “and I would say that courage is exactly what is needed to pass through that storm.”

Marie tried to hide her fear, but everyone felt it. Fear can be contagious. It seemed to rub off on everyone. Syn shook with distress for Marie and for her planet. Rex was visibly anxious.

“COURAGE”

Marie continued to read the symbols on the stones around the island. They all indicated that the storm was her first test. “The ‘Eye is the gate to the second step, Steadfast’.”

“COURAGE”

“Let's camp here tonight.” Rex started making a fire.

“You will need your strength in the morning.”

Marie snuggled in and watched the flames of the campfire in quiet meditation. As the planet spun on its axis, the visible star set and it was darker. There was still twilight around the horizon, because they would only have a few hours before the next star gave a sunrise.

Marie was asleep for those few hours as her friends watched over her and contemplated the fate of their planet. Atlas seemed to rest with Marie knowing that strength would be needed.

When the next star gave its wonderful sunrise, Marie awoke and stretched her wings. “So how do I get through?”

“You must fly straight through. There will be little light to power your wings, and there will be currents to make you drift. Do not touch the walls of the tunnel. The storm is strong enough at the walls to pull you in by the hairs on your head.” Rex was telling her all that he knew.

“It's like flying through a paper towel tube, I just can't touch the walls, or I will be sucked in.”

“CORRECT”

“We should depart. It's time.” Marie's knees were shaking in fear.

“Fear will drain your energy, you must calm yourself.” Syn patted Marie's cheek with a gentle hand and then hugged her shoulder before climbing down.

“I am trying.”

“Take a deep breath.” Rex took a breath after he said it.

“You sound like my parents.”

“Breathing works. It will help you center yourself and find your courage.” Rex was calm and compassionate.

“Ok, it’s time.” Marie took a series of deep and purposeful breaths. She felt her nerves calm. After giving Rex and Syn a hug goodbye, she lifted off the ground heading towards the storm.

“COURAGE” Atlas reassured her. “BREATHE!”

Marie continued to fly towards the tunnel, the eye of the storm, the gate to the next step. She rhythmically breathed to keep herself calm. She focused on the task at hand and understood that the storm was a test created for the first step by the ancients. They didn’t want anyone using the Impetus without going through proof that their intent was noble. She was able to absorb the story of the planet as she flew up to the tunnels edge. “Let’s make this planet’s story epic!”

“HERO”

Marie looked at the size of the tunnel through the storm. It was small. She would have to fly carefully not to touch the walls. Her fingers plucked a strand of hair from her head and she held it to the wall of the tunnel. It instantly sucked the hair in with immense force. Marie quickly let go and knew that she must not come in contact with the storm.

“COURAGE”

Marie took another series of breaths to calm down and control her fear. She knew that her anxiety over the storm couldn't go away, but that she could just accept this fear and move on.

“COURAGE ISN'T GETTING RID OF FEAR. IT'S MOVING THROUGH IT”

“I am going to detach from my fear. Let's get through this storm.”

Marie could barely see the light at the other end of the tunnel. It was dark in the middle. She started into the tunnel slowly and carefully. The air was eerily still as she proceeded on. Occasionally there was a gust that seemed to erupt from the edge of the wall, but she managed to handle each burst and stay away from the suction of the walls in the tubular passage. Panic started to set into Marie, as she went deeper into darkness. She wanted to be courageous, but she was feeling the tightness of the space around her. A mile or more was still in front of her.

“It would be shorter to turn back.” She glanced over her shoulder.

“COURAGE!”

“I can't” Marie stopped and turned to face the entrance. “I can't do this. I am going to get sucked in. The planet is going to perish!”

“COURAGE!”

“I can’t”

“COURAGE!”

“I can’t”

“YOU CAN! YOU MUST! BREATHE!”

“I’ll get sucked in!”

“YOU MIGHT”

“I’ll fail!”

“YOU MIGHT”

“I can’t”

“YOU WILL FAIL IF YOU DON’T TRY”

“I... I...”

“YOU CAN. WE CAN”

“I...I...I...” Marie took a deep breath from the dark air. She looked at the walls sucking around her in the tunnel. She was in the middle of a narrow eye. It was an ominous, beastly, and intimidating storm.

Slowly in the darkness, her breath, Atlas’ words, and her heart began to throb with courage. Her fears were real. Her fears could come true, but she knew that it didn’t change the task at hand. She had to try.

“I must! I can! I will!”

“COURAGE!”

Marie began to move forward again through the storm.

She moved faster. Time was running out, for her energy had started to dissipate from the lack of light. She needed to get out of the eye before she lost her ability to fly. She needed sunlight, starlight, any light, any energy, very soon. The storm seemed to be sucking every drop of energy from her.

“I’m so tired. Atlas?” Marie was getting close to the end. She felt like she could make it. Atlas was dim and unresponsive. The energy was nearly gone.

“I can. I must. I will.” Marie pushed through her lack of energy.



“I can. I must. I will.” She repeated the words to herself with tired breath. As she emerged from the storm she barely missed touching the edge. It was a close encounter that could have ended in tragedy, but she made it. Excitement burst from her being – she passed her first test – Courage.

“We did it! We did it Atlas!”

Atlas started to regain energy now that they were in the

light of day again.

“COURAGE!”

Marie felt her companion's joy. The storm's window, the eye, was two miles long. It was the longest two miles of Marie's life.

“Thank you for your encouragement.”

“WE DID IT”

Marie was again overwhelmed with the gratitude for her companion. She felt Atlas' gratitude as well, but also felt the anticipation of her friend. More was to come, and she knew that it wouldn't be easy.

“STEP TWO”

“Steadfast”

“YES”

“I wonder what the test will be.”

“WE WILL FIND OUT”

“Well the last step was obviously named courage, because that storm is one of the biggest, scariest things I have ever seen. There is no way that anyone could do it without courage.”

“WE HAVE COURAGE”

“Yes, I am feeling rather courageous. I was so set on courage being something that eliminated fear. I found that just is not true.”

“YES”

“The hardest form of courage is the kind where you accept the fears and push through them. I could have gotten sucked in, so it was a very real and a very rational fear. I just had to accept it and move on.”

“COURAGE”

Marie looked down and saw the ground shake. A shockwave in the air shook her flight. Marie realized that the shaking coming from the planet’s surface was the stress created by the pulling of two stars.

“The planet is being pulled in two directions, we must press on. There can’t be much time left.”

“THREE DAYS”

“Three days? We have four steps and have to make the Impetus work.” Marie again was worried, but calmed herself with her firm foundation of courage. Once calm, Marie had a vision similar to her other “decision tree” visions:

...the storm was too great and she decided to turn back. All was lost - the planet, Marie, and Atlas. The story becomes the end of all stories, for she was the last that could have become a hero. A great tragedy is written in time.

“Ok, these decision trees are complicated. That one would not have turned out well, had I not moved through

the storm. How can these visions be of use? I don't see how the reality in the vision ever exists if I don't make that decision!"

“LET’S PRESS ON”

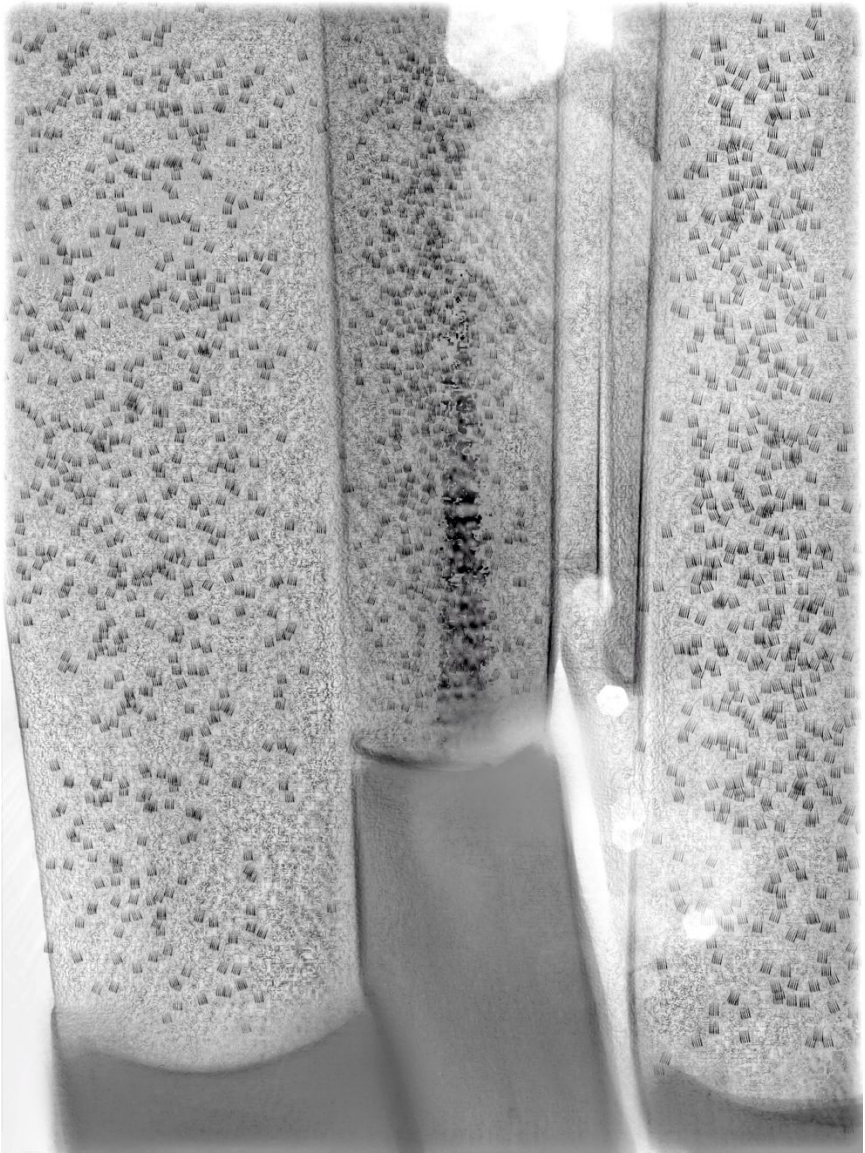
“What’s next?”

“STEADFAST”

STEADFAST

Marie headed for a large hill that had pillars of stone. She assumed that they must be more ruins to guide her. There were no other signs of where the second step would be, so it was her only hope.

“HERE” Atlas felt the power of the ruins as Marie landed next to the stone pillars. They were gray and towering with symbols written over every inch. The tremendous greatness that the pillars stood with was enough to make Marie sit down and ponder for a minute. Every book in her library wouldn’t have enough words to cover these pillars. The amount to process was massive.



“How do I know how to begin the test?”

“READ”

At her feet were large symbols decorated with carvings of

dirt, wind, fire, and water. They were delicately written but held a commanding presence. The symbols themselves looked as if they had stood the test of time in steadfastness. Marie knew that once these were read, there would be no turning back from this next test.

*Read for the riddle of three
Around and around there's a key
A lifetime it could take to see
Pillars of elements will come at thee
Do not waver, or flee
Do not bow or bend,
For if you do, the quest shall end
Be STEADFAST
Or this day may be your last*

“Do not waver, or flee, or bend, or bow!”

Marie took a big gulp to lower that pesky lump in her throat again. Next to the inscription was a blank area that was

the place for Marie to place her answer to the riddle. She was wondering if she might grow tired of puzzles after this was all over.

“READ”

Marie had to find the “riddle of three” on the stone pillars to see if she could solve it. Finding it would be difficult, for millions of symbols surrounded her. Marie started at the top of the closest pillar and began to read. She had to fly to the top, because it was so high, but managed to hover rather well. She read and read and read. Every symbol that she translated was a number. Number after number after number, Marie's mind started to drift.

“DON'T WAIVER”

“I couldn't agree more.”

Marie continued to read. She was looking for any recognizable pattern in the numbers she read, but found nothing. Hours later, she was only an eighth of the way down the first pillar. Marie looked around and counted the pillars. “There are over a hundred pillars! It's a forest of numbers!”

“FOCUS”

“Yes, I will focus. Just keep reading. Just keep going. Be steadfast.”

“YES”

Marie read on for hours more while she was flying. As she approached the midway point of the first pillar with her

super speed-reading, she started to feel hot.

“FIRE. READ ON”

“Fire?”

“FIRE. READ ON”

Marie glanced down at the ground below her and saw flames all around the pillars. It was the first element coming at her. Sweat poured down her, as she remained focused on the numbers. She continued to read. The fire flared up and sent cinders towards her wings. She continued to read. Her skin felt burnt and her mouth was dry. She continued to read. The fire calmed down.

“I don’t see a pattern!” Marie was frustrated, but kept going.

With little time to recover from the fire, water began to pour from the sky. At first it quenched her thirst, and then it began to make her feathered wings heavy. It rained and rained with drops so big that they hurt.

Occasional hail and ice seemed to hit her then freeze the same skin that had felt so hot and burnt with the fire. She was miserable, but continued to read the numbers before her eyes. She still found no signs of a pattern. The rain turned to a drizzle, and then the clouds seemed to melt away. Marie was now at the bottom of the first pillar and was standing on the ground to read. It felt good to rest her wings.

“NIGHT”

Marie looked up and saw that the day was gone. "I must read on, or we will never find the riddle. What is a riddle of three?" Just as she spoke, the ground began to shake and then the wind began to blow.

"ELEMENTS"

"Huh? I thought that wind was one element."

"DUST STORM"

"So wind and dirt! These elements are brutal."

Marie felt the wind picking up the ground and throwing it at her. Every inch of her stung like wasp stings. The sand was making abrasions all over her.

"READ"

Marie found it very difficult to concentrate with the wind and dust coming at her from every direction. Every time she adjusted to get behind a pillar and avoid the sandpaper skies, they just moved to blow directly at her.

"READ"

Marie continued to read at the top of the next pillar. The dust storm calmed down and eventually ceased. Every single symbol was another digit. Marie saw no rational answer, pattern, or solution that would have to do with three.

"This is completely irrational! I can't seem to find anything that helps me."

"THINK"

Marie frantically went from the top of one pillar to the next. She was glancing at the numbers to see if any pillars were the same, had a pattern, or some sort of recognizable aspect.

“READ”

“Nothing is the same on any of these pillars. No patterns! None of my books have anything like this! I can’t read all of them before the end of this planet. What is the riddle of three? There is nothing rational about this!”

“READ”

Marie read on, but continued to feel that this test wasn’t making any sense. “It’s illogical!”

“NO”

“It’s irrational!”

“MAYBE”

Atlas’ words resonated like a loud bell in Marie’s head. “Atlas, you are a genius!” Marie walked over to the blank space to write the answer.

“I AM?”

“It’s the riddle of three! All of these numbers are the decimal places of a rather famous irrational number. I have seen my parents’ computer give the digits of Pi. My Mom showed me once to see how the digits just kept going and going and going.”

“PI?”

“The writing said ‘*around and around there’s a key*’ and I think that means that a *circle* is the key!”

“YES? PI?”

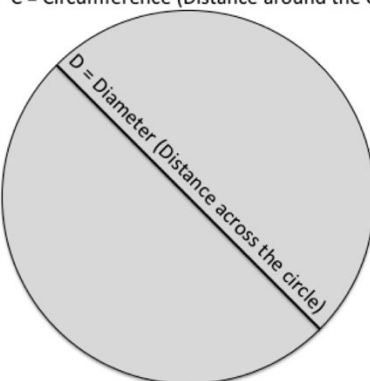
“The answer is Pi! The number Pi! It’s the ratio of the circumference of a circle to its diameter. When you divide a circle’s circumference by its diameter you get 3.1415926535... The decimals just keep going and going because it’s irrational! It’s not rational! There are infinite decimal places. That’s why there is so much to read!”

“THREE?”

“Yes, the Circumference of a circle is approximately 3 times the diameter!”

“THREE!”

C = Circumference (Distance around the Circle)


$$\pi = \frac{C}{D} = 3.1415\dots$$

π or “pi” is the circumference divided by the diameter. This is approximately 3.

“CALM DOWN”

Marie was tired and a bit overcome with the excitement that she figured out the riddle. “Here, let us put it in its place.”

Marie’s finger traced a circle into the answer blank and then traced the diameter across it. Slowly the pillars started to sink down into the ground. The circle that Marie had made started to light up. The light in the circle started to swirl like the storm she had flown through. The pillars had sunk all the way in the ground, leaving no evidence that they were ever there.

Marie started to feel suction from the swirling light. It was like the first planet that the journey had brought her to. The light spun and grew until it was a large door for Marie to leap into. She shook a little with fear of the gateway spinning in front of her.

“DO NOT WAIVER”

Marie understood what Atlas meant. The test wasn’t over for the second step; she must take a leap into the swirling light without hesitation. She must be steadfast. She leapt right into the light with her eyes wide open.

A stream of particles shot up from the surface of Maneo to the surface of one of the orbiting moons. Marie felt her body instantly stretch into a string and then be reconstituted.

This time she knew where she was when she looked around.

“MOON”

Above her head she could see Maneo in all its beauty. The storm that she had passed through and the peninsula were in clear sight. “Wow! We are on the moon!”

The moon had its own atmosphere with different types of plant life and land formations. It seemed vastly different from Maneo and Earth. Most of the plants were purple and orange. The soil was ghost white with a silvery sheen of mica that scintillated with the planet's reflection of one of the binary star's light.

“This is beautiful.”

“THIRD STEP”

Marie knew they must press on, and Atlas continued to reinforce it. There was little time to pause and take in the moon's uniqueness before she saw the next set of the ancients' ruins. “I wonder how they got here?”

“STREAM”

“I suppose you are right. The ones who built all of this must have been able to be a stream of particles, like we were.”

Marie paused and felt another vision coming on:

...the elements were too much, and she couldn't find the answer.

The elements came around for another pass, but the heat was greater, the ice was colder, and she fell to the ground as the elements overtook her. A tragedy, for there was no hero for Maneo, and there was no Marie on Earth...

“These visions scare me! I feel like there is so much potential for peril. These dreams (or visions) make the risk and peril that much more real to me.” Marie was a little shaken.

“ALL HEROES HAVE RISK”

“I suppose you are right. Maneo is full of life, and my mission is to save them. What is an adventure without risk?”

“TO THE RUINS”

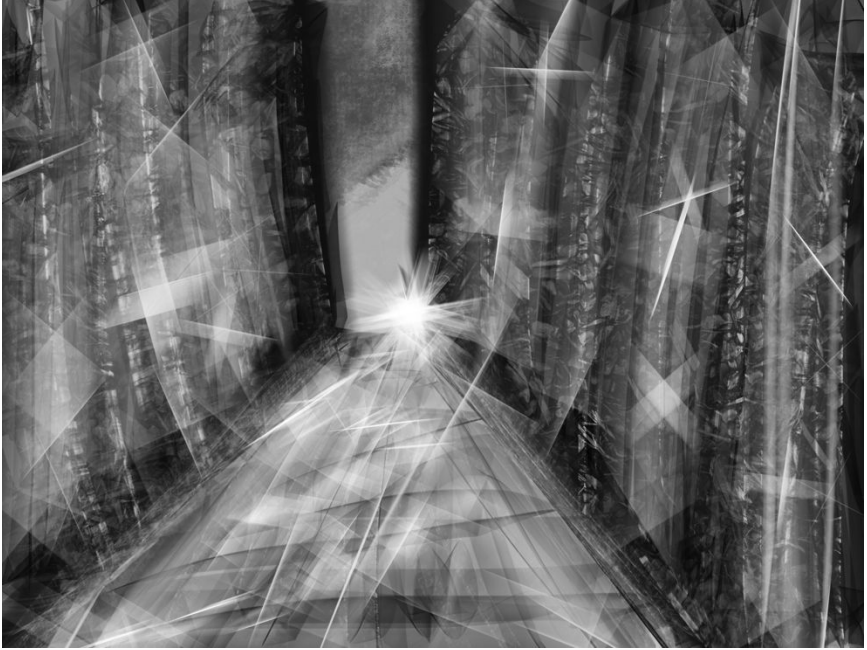
Marie flew to the next set of ruins. These remnants were not made of stone like the others. “Metal? They are so shiny!”

“LOOK”

“Oh my!” Marie looked at the ruins and found that they were just the start of an entire city of shiny metal artifacts that spanned for miles. Approaching the edge of the ruins, she read the large symbol before her.

“DETACHMENT”

“Detachment”



DETACHMENT

“GO THROUGH THE CITY”

“It’s like a lifeless city that goes on for miles.” Marie started to walk into the ruins.

“DETACHMENT”

“I know, but I’m not sure what detachment is going to be like.”

The ancient city looked like downtown Manhattan or Paris, but instead of having windows, everything was a solid sheet of reflecting metal. Towers seemed to stretch for miles upward and outward. It was eerily quiet and empty. Marie went on through the mirror-like city, with a heavy feeling in

her stomach.

“I wonder what this test will be.”

“DETACHMENT”

After what seemed like hours, they came to the center of the long-abandoned metal metropolis. Marie spun around and looked all around her. There were paths that all led to where she stood from all directions. At her feet she noticed a circle that was surrounded by eight more circles. They were all carved into the metal of the ruins. The outer most circle was more than a swimming pool across. The innermost circle had symbols inscribed. Marie had to look past her own reflection in the circle at her feet to read the words for her next challenge.

You have a purpose in this dimension

- to rescue a threatened sphere.

This next test will make you tear,

For a severance will bring great tension.

Overcome your own desire.

*Remain steadfast and don't tire,
Or the sphere will cease to exist,
And you will become nothing but mist.*

“For a severance will bring great tension’ – what does that mean?”

Marie stood in the middle of the city of ruins. An overwhelming surge of emptiness came through and around her. Atlas did not answer her. She didn't have to look at her hand, for she already knew what had happened.

“A severance! I am cut off from my friend, my dear Atlas, my companion, my ... my ...”

Tears started rolling down Marie's cheeks. She started clapping her hands. “Atlas! Atlas! Come back, you are just silent! You aren't gone, because you can't be gone!”

Marie refused to acknowledge that she was alone, because it was too painful. Atlas had bonded with her innermost thoughts, and she had felt like the two of them were one.

She paced within the innermost circle and found that whenever she tried to cross the line that it wouldn't allow her to. The symbols read the same and she repeated the word “severance” over and over as she spun in her isolation. Slowly her denial turned to anger.

“Ahhhhhhh! Why am I here? I didn't ask for this! I don't want to do this alone! Atlas, why did you leave me?” Marie yelled for quite awhile before she started think about all of the events that had happened.

“Maybe this isn't the right ruin. I shouldn't have come

inside this city. I shouldn't have read the symbols. Atlas, it's my fault, I lost you!" Tears continued to pour down her face until she crumbled into a ball in the center of the circle.

Marie's dark hair covered her face as she huddled in utter sadness, alone, and disoriented. She wasn't thinking about Maneo, Kolos, the beautiful fields, caves, ocean, and uniqueness of what was soon to be lost. Marie could only sit in sadness. She did so for what seemed like an eternity, and then her hand brushed one of the symbols beneath her.

"Ouch!" the symbol was engraved in the metal and had a sharp edge that had given Marie a paper cut like graze on her finger. She stared down at the symbol as a single drop of blood fell onto it.

"Purpose, it says. What's my purpose?" Marie dug deep down in her heart and found a single truth. "My purpose here is to serve these beings – to save their planet."

Marie started to realize that she had a single truth and purpose in the realm that she had come to. With or without Atlas, she was the only hope for Maneo. Slowly she accepted that Atlas was gone. She was sure now that it was Atlas that she must detach from. Marie found herself and her purpose in her adventure. Atlas helped her get to where she was, but she had to carry on without him. Marie remembered her friend with all her heart and let her friend go at the same time. She carried the virtues demonstrated by her friend in her heart.

“Farewell Atlas.” A tear dropped from her chin as she raised herself up to continue on.

Marie was able to leave the circles in the center of the ruins. She was able to move on because she had become detached. On the outermost circle she read symbols that pointed down a particular path. She trusted the directions and followed. The path seemed like all of the others. Every structure reflected Marie's dark hair, feathered wings, and washed-out eyes. When she looked down she saw perfect reflections of herself – it was dizzying.

“Where does this go?” Marie still talked to herself without Atlas to answer (just as before). To her right, Marie noticed an inscription on one of the buildings.

“Enter,” she read in a whisper.

Marie saw a door form on the surface. It was dark like a cave, cold as a freezer, and empty – just empty. Marie walked into the dark emptiness with silence. She felt her intuition telling her to walk on. She kept going until there were no more signs of the door she came through. It felt as if she was a frozen icicle that was encased in the deepest, darkest bowels of a glacier. She continued to walk with her mind set on her mission.

“Maneo, I am coming.” She whispered to herself to fill the silence.

At the far end of the chamber, a small, lighted set of

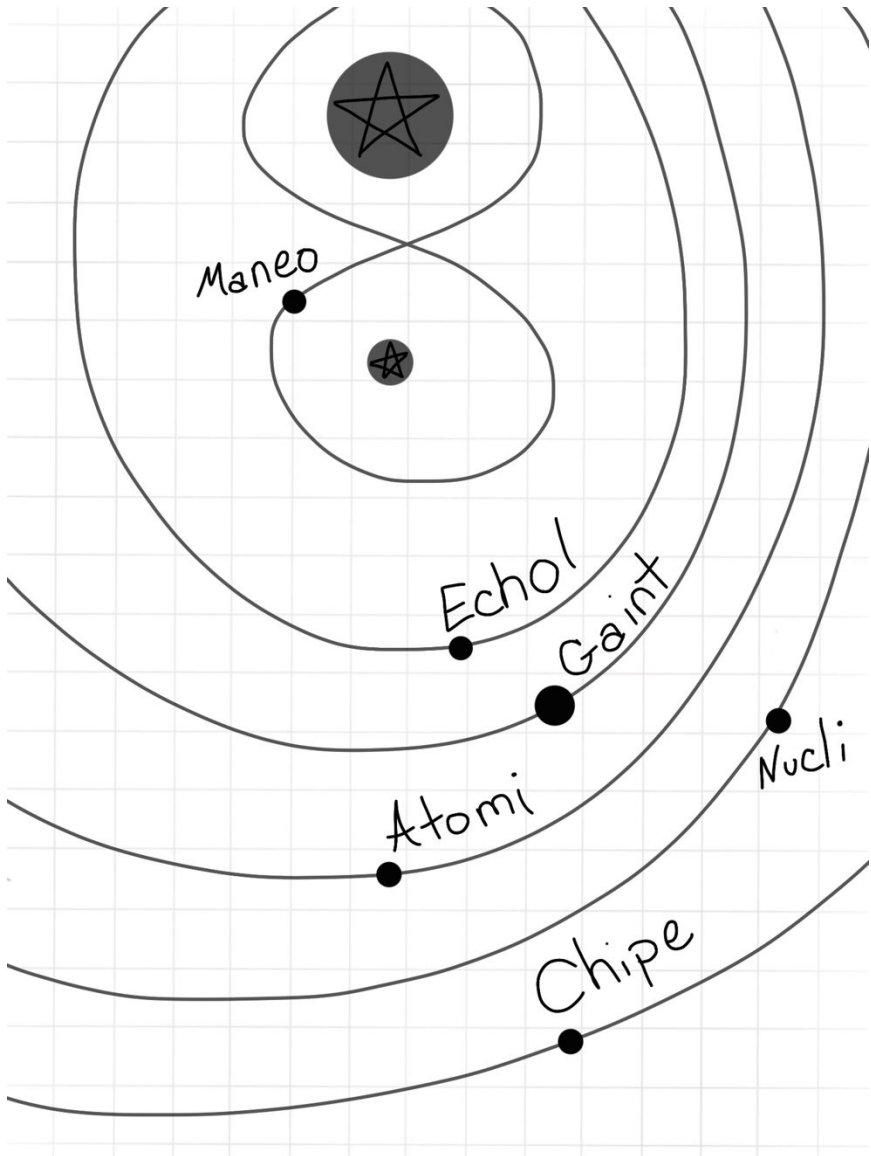
symbols glowed with a slow pulsing blue. Marie walked towards the symbols. The closer she got, the more she could see.

“A puzzle. Another puzzle! Is my detachment test over?”

Before her stood her next brain-bending challenge. She read and re-read each symbol carefully. There were only a handful to read, but she wanted to be meticulous. She read them slowly out loud:

“Around the stars these planets orbit. State their order given the clues: Echol circles before Gaint. Echol circles after Maneo. Atomi circles before Nucli. Nucli circles after Gaint. Chipec circles after Nucli.”

Marie carefully thought out each name of the planets and tried to do it in her head. It wasn't long before she got frustrated, so she whipped out her handy little notebook and started to sketch and problem-solve in the dim light. Nulci was the tricky one. She almost put it after Gaint.



“Maneo comes first, then Echol, then Gaint, then Atomi, then Nucli, then Chipel!” Marie was excited that the puzzle went so easily. She had loved to play with logic games and this one reminded her of home.

As soon as the planets were entered, the chamber lit up and Marie could see where she was. It was an entire room of mirrors. She couldn't see a door, but could see her reflection on every wall. She noticed the symbols on the wall starting to spin, just as the planets would spin in their orbits. They spun faster and faster and then spun a hole right into the wall in front of her. She followed the lights that seemed to flow down the tunnel that had just been formed. Little blue streaks of light illuminated the walls of the freshly formed tunnel in a way that a candle glows just after being blown out. Marie crawled on her hands and knees for what seemed like miles before she entered another chamber.

“Oh!” Marie saw yet another puzzle in the chamber on the wall. “I should have known that the last one was too easy.”

She looked around and noticed that this chamber was much smaller, but also full of dimly lit mirrors. The mirrors in this room were drossy and gave off distorted reflections. The ceiling was high, but also very rustic. Marie flew across the room to take on the next set of writings.

The symbols on the wall were simple. They repeated one simple number. Marie focused on the wall that appeared to

sparkle with a single digit that meant nothing.

“Zero. Nothing but Zeros.” Marie fidgeted a little with nervousness. “Maneo, I am trying!”

Zero was written a million or more times and Marie couldn't think of anything, because she didn't know what the question was. She thought back to the egg and Atlas. “I didn't know what the question was then. What's the riddle?”

The lights in the chamber started to dim. Marie felt like she was running out of time. She was right. Maneo was being shaken from its depths as it was starting to be pulled apart. Kolos and all his comrades kept hoping that Marie would succeed. Marie felt their hope in the rustic chamber.

She dug deep into her mind for understanding of the current task, and the only thing she could think of was detachment. She thought about losing Atlas and accepting her purpose with or without a companion. She thought of being alone and she realized that she still held on to a tiny piece of self-pity. She realized that she wasn't completely absorbed into her purpose, because she was still a little absorbed in herself. “I want to be the hero! I want to be with Atlas! It shouldn't have happened this way!”

The lights grew dimmer. “Detach, Marie! Detach! You are here to serve Maneo. Save the planet!” Marie suddenly became indifferent to being heroic. She stopped feeling sorry for herself. She left all of her self-ego and stared at the zeros,

wanting nothing but her purpose to be fulfilled. She didn't notice her wings falling off and onto the floor. She didn't notice that her clothes changed into a single sheet of cotton-like material. She didn't notice that her eyes reverted back to her human sight. Marie didn't notice anything that was happening to her.

“Zero! I have nothing! I only know that I want to save Maneo!”

She took a deep breath and with trust and intuition she walked right through the wall of zeros, because she knew that by passing through the wall she passed the test of detachment.

Marie turned into a stream of particles immediately and journeyed into a cave deep inside another moon's surface. She didn't know where the cave was, but knew that she had been brought to her next test.

“Peace” she whispered.

Before she had a chance to look around, Marie had yet another glimpse of the decision tree that had been formed:

...she couldn't figure out the order of the planets, because she was too consumed with being alone. OR she couldn't become detached enough to walk through the wall of zeros. Either way, the test of detachment would be over and she would have failed. She was supposed to be attached to her one purpose, her one mission (and nothing else). Because

she didn't pass, the planetary sphere of Maneo ended, and Marie went with the moon in the stellar tug-o-war...

Marie felt the grief of the decision tree, but was glad that she was able to stay focused. The visions were having less effect on her now. She was, in a way, detached from the decision tree visions, because they were not part of her mission (or so she thought).

PEACE

The cave was damp and smelled of herbs and moss. A glowing crystal stood in the middle, illuminating the walls with a beautiful hue. The ground was soft under Marie's bare feet. She stood in the simple sheet of cloth, no wings, no Atlas, no shoes, no special vision. The cave was a relief from the cold Marie had felt on the other moon, for it was warm and comforting. Marie could almost fall asleep in such a serene place.

Around the crystal stood eight stones covered in lush moss. Growing from each stone, there was a flower of the most exquisite color and uniqueness. Each flower had an orchid-like shape that was completely different from the

others. Marie gently pressed her nose into the first flower, then the second, and so on.

Each scent was unique. The first smelled like courage, the second like love, the third like detachment, the fourth like unity, the fifth like joyfulness, the sixth like generosity, the seventh like faithfulness, and the eighth like humility. When she wafted all of the smells together towards her face, she smelled the combination of them all. She smelled peace.

Marie kneeled on the pillow-like moss and stared into the crystal. Deep within the crystal she saw symbols. They were hard to read, for her enhanced vision was gone, but she had read so much before, that she slowly was able to understand from her memory. She whispered the instructions to herself:

Arrange peace flowers in groups of eight.

So peaceful you must be,

The count of arrangements gives a key

To open up the peaceful gate.

If you lose your peace

Sad it will be

There will be a fee

For your sight will decrease

Marie thought about the symbols while taking deep breaths to keep her inner peace. She practiced meditation to hold on to her detachment, steadfastness and courage. She felt nervousness creeping from inside, but managed to keep it tucked away.

“Arrangements of eight? They are already arranged. There is only one blank space to place an answer, so I wonder what the count is. Arrangements, arrangements, arrangements!”

Marie started to feel the hope from all the planet’s creatures. The hope was strong, but there was another emotion emanating from the surface: fear. Marie started to feel the fear of the planet’s creatures. The fear took her by surprise and disrupted her deep breaths that were keeping her inner peace strong. She shook with fear.

The crystal started to dim. The darkening light only made Marie’s fear worse. The more she feared, the darker it got. She started to cry and it went black. Not a speck of light was around her, only complete darkness. She managed not to panic, but still kneeled in fear. She could feel the planet shaking as it was being slowly pulled, and knew that there wasn’t much time left. It shook her to her very core. She couldn’t see anything.

The flowers continued to waft virtuous fragrances over

Marie. The peace that was created in the air started to stabilize Marie's shaking. She smelled each flower separately, and then together in the darkness. When she changed the order that she smelled them, a different form of peace emerged. Carefully Marie tried different combinations and smelled inner peace, nature's peace, universal peace, worldly peace, brotherly peace, generational peace, compassionate peace, loving peace, and on and on and on.

“So many forms of peace! How beautiful!” She felt every form, as she smelled the beautiful fragrances. “That's it! It would take me a long time to smell every order of flowers! How many are there?”

As she whispered to her self, the darkness started to lighten up with an ember glow. The prompt for the answer stood before her. Each flower seemed to glow with the light.

“Arrangements are combinations! That's it! So how many ways can I smell the flowers? I think there is an equation for that.” Marie tried to remember her math books at home. It seemed so long ago and far away. “Well, if I had three items it would be... it would be...six ways.”

1, 2, 3

1, 3, 2

2, 1, 3

2, 3, 1

3, 1, 2

3, 2, 1

“And if I had four items, then it would be...”

1, 2, 3, 4

1, 2, 4, 3

1, 3, 2, 4

1, 3, 4, 2

1, 4, 2, 3

1, 4, 3, 2

“It would be six combinations multiplied by four numbers. That’s 24!” Marie suddenly remembered what the equation was. It uses a fun little mathematical symbol that’s the same as an exclamation mark – a factorial.

A factorial of a number is all of the numbers counting up to that number multiplied together. Marie turned to a page in her notebook that had a factorial comic that she had drawn. There, she started to figure out what eight factorial (8!) would be. She started with 3! and worked her way up.

$$3! = 1 \times 2 \times 3 = 6$$

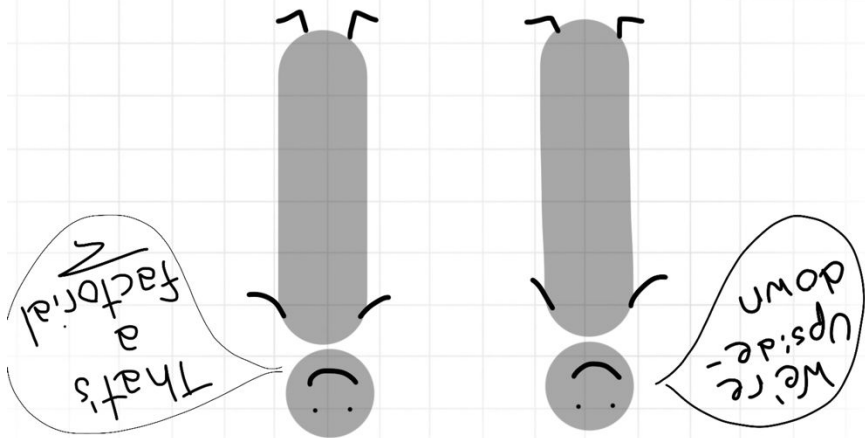
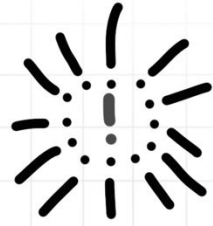
$$4! = 1 \times 2 \times 3 \times 4 = 24$$

$$5! = 1 \times 2 \times 3 \times 4 \times 5 = 120$$

$$6! = 1 \times 2 \times 3 \times 4 \times 5 \times 6 = 720$$

$$7! = 1 \times 2 \times 3 \times 4 \times 5 \times 6 \times 7 = 5,040$$

$$8! = 1 \times 2 \times 3 \times 4 \times 5 \times 6 \times 7 \times 8 = 40,320$$



“That’s it! The answer is 40,320.” Marie entered the answer into the prompt on the crystal. The crystal turned from an ember glow into a blinding, yet wondrous light. The

light slowly focused into a tight beam and pointed towards one of the cave's walls. The beam started to cut through the wall with red-hot power. The laser cut four straight lines in the shape of a square – a doorway was formed.

A decision tree was made:

...the light grew dimmer and dimmer, because she could not hold her inner peace. The planet's cries for help, and her fear prevented her from figuring out the flowers' arrangements. The room grew dark, Marie's fear never allowed the room to illuminate again. Maneo was written into time with tragedy...

“So much tragedy in these trees! A hero's path is narrow! I must tread carefully.” Marie imagined Atlas telling her that the vision was useful now, because it reminded her to be careful, thoughtful, patient, and excellent in her mission, for there was no room for error.

Marie walked to the threshold of the opening and saw another mossy cave on the other side. The threshold was hot, since melted rock from the laser was still cooling. She leapt across the cooling rock and landed on a soft bed of moss that was similar to the previous room. Again, there was a crystal in the center that was giving off a beautiful light. Flowers surrounded it just as the previous one, but instead of eight flowers, there were nine.

Marie looked up and saw symbols on the ceiling that were illumined like stars in a planetarium. She noticed that the crystal was projecting the light onto the ceiling. Marie laid down on the soft bed of moss and gazed at the ceiling to be able to read the symbols. A memory of stargazing with her parents in the desert made the soft bed of moss even more comforting.

"Nine, nine, nine. There are nine flowers. I see nine symbols." Marie whispered in the quiet cave. "The symbols say:"

1. *Breathe*
2. *Be still*
3. *Quiet your thoughts*
4. *See without seeing*
5. *Hear without listening*
6. *Feel without touching*
7. *Contemplate peace*
8. *Become peace*
9. *Peacefulness*

Marie repeated the nine symbols a few more times as she rested on the moss. She took some very deep breaths to keep

her inner peace. She remained completely still. Her mind grew quiet and open. She started to see peace, and hear peace, and feel peace all within her mind. She started to think delicately about peace until she became peaceful. Another breath came deep into her lungs, and she slowly exhaled pure peacefulness. She felt the quiet of the stars around her in the vast universe.

As she exhaled again, the peaceful breath wafted over the nine flowers. As the air passed by them, they illuminated and grew. Marie looked up and saw the flowers growing to the ceiling. They twisted and turned to all of the walls of the cave.

The cave walls quietly cracked and crumbled to dust under the pressure of the flowers' growth. The dust fell on Marie's dark hair. She looked like she had poured glitter on herself.

With another decision tree vision, she knew that her inner peace and stillness were the only characteristics that would have gotten her through the last room:

...the fear within her kept her from becoming peace...tragedy on Maneo...tragedy for Marie...tragedy for the future of stories...

Marie took a deep breath of relief and reassured herself that the decision tree wasn't real, that it was only a dream.

The cave was gone, but the crystal remained. Marie walked over to the crystal and placed her hands on top of it. She knew that she had passed through “peace” and that it was time for the last test – “trust.” With the crystal on her hands, she felt a wonderful sensation.

“Atlas! Atlas! You’re back!”

“NEVER GONE”

“But you were gone! I was alone!”

“I WAS HERE”

“How?”

“THE DETACHMENT TEST”

“So part of my tests?”

“YES, TO KNOW IF YOU ARE TRUE TO YOUR MISSION. A TRUE HERO”

“But heroes have friends!”

“YES, BUT THEY MUST BE ABLE TO OVERCOME FEAR, FOCUS ON THEIR MISSION, AND BE FLEXIBLE. DETACHED”

“I missed you Atlas. I like being Cosmos.”

“I AM HERE”

“There are only moments left, we must proceed.”

“PUSH DOWN ON THE CRYSTAL”

Marie pressed down on the crystal and became a string of particles for a split second, before arriving at her last test.

“TRUST”

SEA OF TIME

Marie arrived on a vast beach on the surface of a nearby planet called Gaint. The entire planet was blue sparkling sand and peach colored water. Gentle waves beat like drums on the shore. The lighting was similar to Maneo's, but slightly different with the angle of the binary stars.

Marie remembered from arranging the planets during her detachment test that Maneo was the only planet that passed between the two stars. She oddly felt safe knowing that the ground she stood on wasn't going to pass between two gravity wells. However, she did feel the fear of Maneo's inhabitants close by, and knew there wasn't much time.

“GAIN’T”

“I thought so. I can see some of the planets above us.”

“TRUST”

“All I see is sand and sea, where is the next test?”

“WALK DOWN THE BEACH”

“Which direction?”

“IT DOESN’T MATTER”

“Really? We don’t have much time!”

“TRUST”

“Ok.” Marie walked to the right along the beating waves. The blue sand was soft on her feet in a very different way than the moss, but was still soothing. The peach colored sea seemed to push yellow and orange waves against the blue. The Cosmos duo walked for some time before Marie noticed a flat blue stone at her feet with symbols.

“They are arrows!”

“GO WHERE THEY DIRECT”

“They are pointing into the sea!” Marie looked and saw a line of blue stones pointing deeper into the sea. They became covered with wavelets and then appeared again. She could see that the trail led her into the ocean.

“GO”

“I can swim, but the arrows are deep. I’m not a mermaid or a fish. I can’t breath water!”

“IT’S NOT WATER”

“Are you sure? It looks like water.”

“YOU DIDN’T BREATHE IN SPACE!”

“I need to trust. Sorry. Let’s go.”

“TRUST”

Marie walked into the peach waves. The liquid wasn’t warm or cold, but neutral. She was knee deep, then waist deep, then chest deep, then neck deep. Marie stopped and felt Atlas urging her under. She was starting to lose sight of the blue symbols that pointed the way, because they were deep. She felt Atlas again.

“TRUST”

Having her companion back gave Marie great joy. She took a deep breath and put her head under the surface of the sea. Marie had spent most of her life in deserts, so the ocean wasn’t home to her. Occasionally, the family would dig at cliffs where bones were being exposed by water’s erosion, but overall Marie was a desert girl. She wanted to take a deep breath to calm her nerves, but feared the liquid around her. Atlas comforted her and with a wave of trust she breathed in deeply. The sea wasn’t water (just like Atlas said). The breath was of something else, she felt the same way she did in her first flight – amazed.

“WONDERFUL. YOU TRUST”

Marie felt an overpowering urge just like the first time

she flew with her wings. She realized that by submerging herself into the ocean that her wings had come back to her. Joy filled her being and she started to move her wings in the sea.

“FLY”

“Yes, fly!”

“FLY”

Marie spread her wings and flew through the liquid the same way she flew through the air. Flying was easy and invigorating. She proceeded deeper and deeper into the ocean following the blue stones. The pressure of the sea would have crushed any human, but Marie was special. She had wings. She had courage, steadfastness, detachment, and peace. She had Atlas. Somehow, in a magical way, she was able to proceed into the deepest part of the sea.

Another crystal was glowing in the dark underbelly of the ocean. There were two tiers next to the crystal. One was smaller than the other and was clearly the first step for Marie to take. The second was ominous and had a single symbol on the side that looked like one big eye. Marie’s enhanced vision had come back and she easily read the symbol.

“FORSHADOW”

“I just read ‘shadow’”

“FUTURE SHADOW”

“Huh?”

“AND PAST SHADOW”

“I don't understand”

“YOU WILL”

Marie swam (flew) over to the crystal and saw Maneo suspended in time. It was at the very last second – a point right before no return. If another second were to pass, the planet would never recover. Marie panicked. “We're too late!”

“TIME HAS STOPPED”

Marie looked at the crystal again and realized that nothing had moved. The silver glow portrayed the very last moment for a planet.

“FROZEN IN TIME”

“How?”

“READ”

Marie looked down at her feet, sensing Atlas' prompt. Around the crystal's base, carved in blue stone, was an inscription. Just like the previous tests, it was in descriptive verse. She noticed that around the verse was a beautifully written word – **Impetus**.

“This is Impetus! This is what will save Maneo! Remember?” Marie was excited.

“YES. WE ARE ALMOST THERE. READ”

Marie closed her eyes, took a breath, and quieted herself

before she read the next test.

*In a sea of atime you sail
You must trust or you will fail
Be careful how you think
For a planet is on the brink*

*Will this story be up or down?
Nadir or apex?
Now, become a hero or a tragedy.*

“So Maneco isn’t gone yet? We are frozen in time?”

“IN ATIME”

“So ‘atime’ freezes time?”

“TIME AND ATIME CANCEL EACH OTHER
OUT”

“So it’s like adding a positive and a negative number together? Five plus negative five is zero. Time stops when a time is around?”

“YES, BUT...”

“But what?”

“THERE IS NO WAY TO EVER GO BACKWARDS WITH A TIME”

“Oh, so we are frozen, until we leave this sea?”

“YES”

“Got it! So ‘nadir or apex?’” Marie knew that the apex was a high point and a nadir is a low point and didn’t really want to contemplate what the low point was. She had already had visions of so many different tragedies.

“So, will I succeed or fail? I suppose that is the question. Shall we find out, my dear friend?”

“YES!” Atlas’ excitement surged through Marie. She was grateful to have her friend with her for the last challenge.

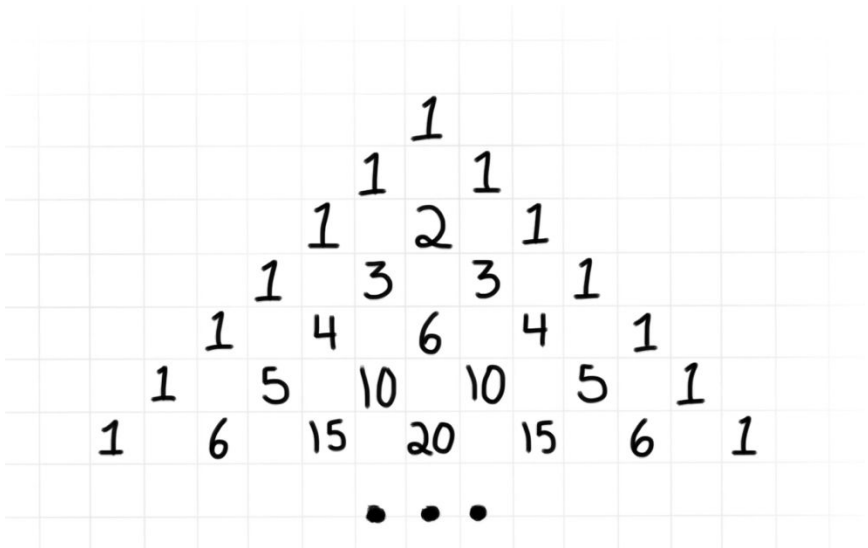
Marie approached the first tier. It was full of symbols that were all numbers except for a single inscription:

Triangle’s riddle you must crack

It ties the end to the start

*Trust you must not lack,
Or from this sea you will not part.*

Marie thought about “Ties the end to the start,” but couldn’t quite understand what the inscription meant. The numbers were in a distinct pattern on the stone. Marie recognized right away what the arrangement was – Pascal’s Triangle. Marie had drawn a picture of the triangle many times in her notebook. She grabbed the book out of her back pocket and looked at it.



“END TO THE START”

“Well, the triangle is Pascal’s, but there are so many

things you can do with the triangle. I don't know how it is tied from the end to the start!"

"OUR END? OUR START?"

"Well, we met and became bonded when I solved the riddle of the seed by placing the pieces together that my parents gave me."

"1, 2, 3, 5, 8, 13, 21, 34, 55, ..." Atlas was lining Marie's palm with numbers.

"Fibonacci! That was the start! Ok, but what does the triangle have to do with Fibonacci? Pascal was a mathematician in the 1600s, and Fibonacci was around in the 1100-1200s. That's not during the same time at all. I think I vaguely remember something about a French guy, maybe Lucas, discovering a connection, but I don't recall the details."

"THINK"

"I just don't remember."

"TRY TO SOLVE"

"I am not a mathematician! I can't just find the correlation between Pascal and Fibonacci!"

"TRUST"

"Trust what?"

"TRUST YOURSELF"

"Me?"

“YES. TRUST THAT IT WILL ALL BE OK”

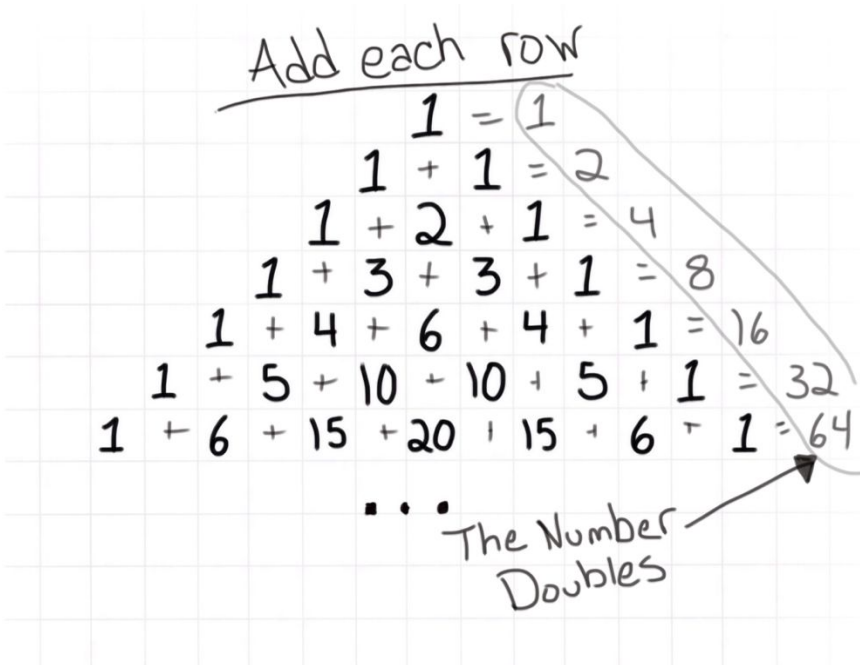
“It will?”

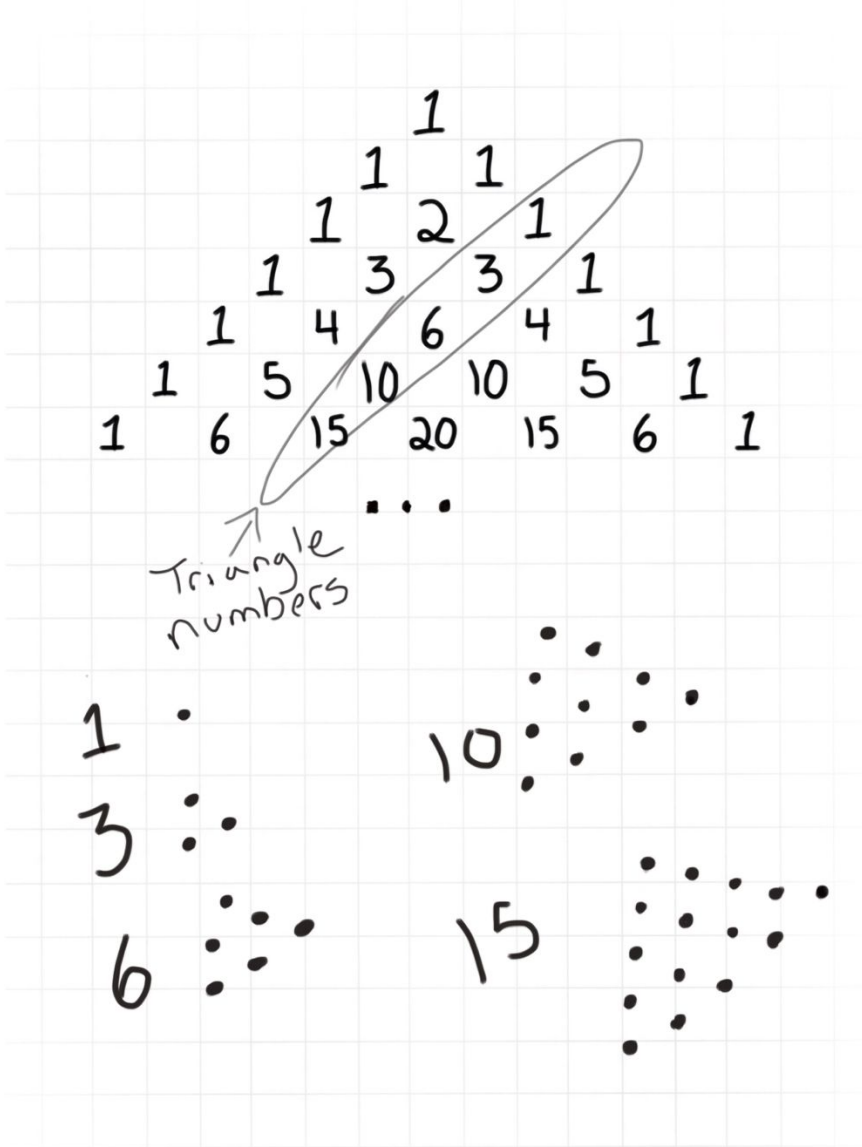
Marie sensed that Atlas was trying to say that what will be will be, and that all she could do was to try and hope for the best.

“TRUST”

“I suppose I should start with my trust in you telling me to trust and try. Ok. Let’s do this.”

Marie tried by finding different patterns in the triangle. She started by adding each row and noticed that each time she moved down a row, it was double the last one.





“No relation!” Marie continued to rearrange numbers and diagonals for what seemed like forever. There were so many unique and amazing patterns, but nothing to do with

the Fibonacci numbers.

“IT IS OK” Atlas comforted Marie. She was tired and her brain hurt.

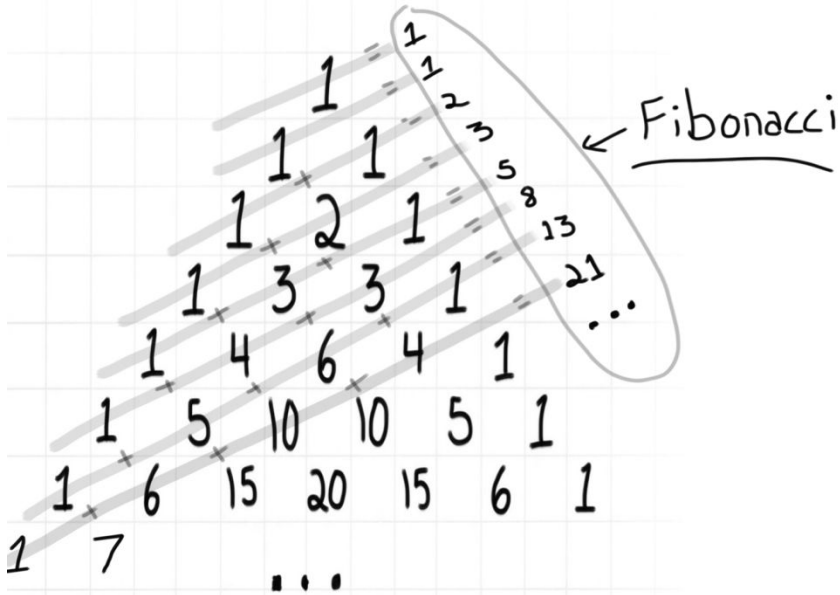
“Ok, let's try a different approach.” Marie started to feel an idea tingling in her mind. “What if we change the slope of the diagonal? What if I connect the numbers at a different angle?”

“TRY”

“Yes! Try! Hope! Maneo, We can do this!” Marie started to write out another triangle in her book. This time she started drawing lines at a more gradual slope through Pascal's Triangle and adding the numbers together.

“THAT'S IT!”

“Yes! That's the sequence! 1, 1, 2, 3, 5, 8, 13, 21, ...”



Marie approached the first tier and Pascal's Triangle was inscribed before her. She took her finger and traced the diagonal lines across the triangle as she had drawn in her notebook. The tier became illuminated and started to shake. Marie backed off and watched it sink into the sand and disappear. She felt joy and exhilaration that she had solved the first puzzle. At the same time, she felt nervous about the eye on the next tier. The second tier stood before her. She knew she was closer to finding the Impetus.

TRUST

“Shadow”

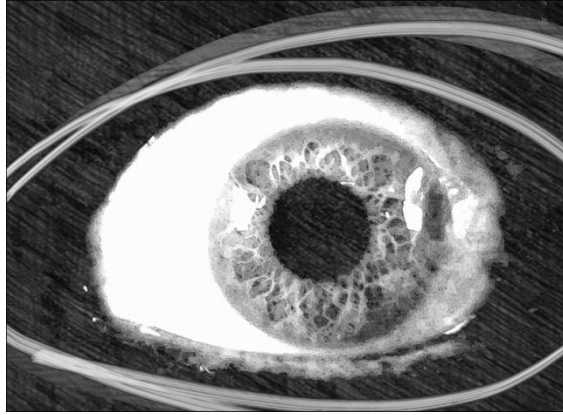
“PAST, FUTURE, PRESENT SHADOW”

“I still don't understand!”

“YOU WILL”

Marie approached the ominous tier. The single symbol seemed to stare through Marie. It was a stare like her mother would give her when she knew that she had done something wrong. It was like a stare from a polar bear buried beneath the snow, waiting for her – watching. The stare seemed to see everything about Marie. It was seeing her past, her present, and her....

“FUTURE”



Her hand touched the seeing symbol and she suddenly was and wasn't in the sea at the same time. By touching the symbol, her mind was transported through different points in time and different scenarios. She was being brought along each branch of her decision tree. She saw all that had already happened. She saw her visions of how things could have turned out differently. The path that she had journeyed was a narrow path. It was just like navigating a thin rim between mountain peaks, or a slack-line between two skyscrapers. Any missteps on the adventure would have had grave consequences. The touch of the eye-like symbol made her realize that every decision she made was significant.

After she saw the complete decision tree, she saw herself standing at the second tier. She felt like a spy, looking at herself frozen in time. It's not like she was on the tier, but more like she was watching herself in a play or movie. It was hypnotizing to see herself in this state. She couldn't stop staring – it trapped her and Atlas felt it.

“MOVE ON”

Marie didn't respond. Seeing herself was spellbinding, and she didn't realize that she was being sucked into a permanent gaze.

“STOP! WAKE UP!

Marie slowly snapped out of the trance and came back to herself at the tier. Her hand barely remained on the symbol. She oscillated between visions of the past and visions of staring at herself in the present moment. Her body stood motionless, but her mind moved. She started to feel like she was never going to be able to move forward.

“Past, present, past, present, look at me, past, present,” Marie kept seeing herself pass the tests of virtue and knowledge. She saw herself stuck in time. She saw that she could not move forward.

“FUTURE”

“I don't see it! I can't move! There is no future!” Marie was grateful now for being able to hear Atlas' thoughts and vice-versa.

“LOOK FOR THE FUTURE”

“Where? I only see what has been and what is now! Is the future lost? Is the universe frozen?”

“LOOK FOR IT! YOU MUST SEE THE FUTURE!
EVERYTHING DEPENDS ON IT”

Marie started to recognize the danger at her fingertips.

She couldn't seem to move. If she didn't see a future, then she would be stuck in time forever. Maneo would be stuck on the brink of extinction, the universe would look like a museum diorama, no movement, no future, no more. The longer it took for her to move, the harder it was to think.

She hadn't realized what the effects of atime were on the universe, until now. She couldn't seem to move past her present. The hypnotic effect of staring at herself seemed to suck her awareness into an unconscious vacuum. Marie was slipping away and Atlas tried to wake her from the abstraction again.

“MARIE”

Nothing came from her.

“MARIE”

A sigh.

“MARIE!”

“Atlas, help!”

“YOU CAN DO THIS”

“I'm stuck”

“TRUST!”

“I'm stuck!”

“TRUST!”

“I'm trying!” Marie started to think of what she could do to see the future, to move time again.

“TRUST!”

“I trust myself. I trust myself. I trust that this will end in victory. I trust myself. I trust in the good. I trust in you, friend!” Marie kept reassuring herself and started to think of what could happen in the future.

She started to see a vision of her hand twisting the symbol to the right. The result was a vision of utter destruction of Maneo.

Then she saw her hand twisting the symbol to the left, and again saw destruction. Now that she was able to start playing out different endings to the story, she began to think of amazingly creative ideas. She thought of jumping, singing, clapping, coloring, kicking, spitting, and a thousand other ways to push, pull, or change the symbol to get out of the sea of atime and save Maneo. She was able to visualize future decision trees. It was invigorating, and yet devastating at the same time, for she couldn't seem to find the right branch.

“They all end in destruction! Every branch! What do I do?”

“NOT ALL”

The symbol seemed to be staring even deeper into Marie's being. She continued to think of how to change the symbol to pass the test. She felt that the symbol was the key, and by now she knew that her intuition was to be trusted.

“TRUST”

“I trust. I trust. I trust!” Marie closed her eyes after feeling like she hadn’t blinked for a thousand years. With that blink she moved. Time was beginning to regain momentum.

When she closed her eyes, she realized that the symbol was no longer looking through her. The big eye-looking symbol wasn’t able to hypnotize her. She could think clearly. She realized how to pass the test.

“TRUST”

“I got this!”

“TRUST”

Without opening her eyes, Marie took her hand off the symbol. She suddenly lost all doubt that she had about herself. She realized that the symbol was there to make her doubt, to make her lose trust in herself, in Atlas, in a future. The symbol was a trap built by the ancients to freeze anyone undeserving enough to gain access to the Impetus.

Keeping her eyes closed, she quickly put her hand on the symbol again. This time, it wasn’t to touch it, but to alter it in a way that she knew would save Maneo. She didn’t have to see the decision tree before she took action. Marie’s hand closed the eye of the symbol. Sensing a change, Marie then opened her eyes.

“YOU DID IT”

“I did! I knew I could. *We* did it. You snapped me out of it, Atlas. Thank you.”

The second tier sank into the sand and the sea of atime around them began to bubble like a fizzy soda. A third tier slowly grew out of the sand into a large tower. It looked like the tower in the paintings of the ancients that had saved the planet before. It had a large engraving that read:

IMPETUS

Marie suddenly saw her future. She saw a vision of herself pressing a big red button at the base of the third tier. The decision tree was telling her the next step. Knowing that she needed to fulfill her vision she quickly went to the base of the tier. The sea around her seemed to be evaporating quickly.

“TIME”

“Time is about to start again! The atime is dissipating.”

“IT'S TIME”

Marie quickly pushed the red button on the side of the enormous stone tier that had grown from the sand. There was a rumble, then a quake, then a glow from the top of the Impetus. Marie could see the ancient technology shoot like a laser beam towards Maneo with a solid stream of light.

“It's working!” Marie saw with her super-eagle vision that

Maneo now had a force field around it that was holding it together as it passed between the stars. The last drop of a time evaporated, and within seconds, Maneo quickly passed between the binary stars. The protective force field around the planet kept Maneo intact and saved all of its inhabitants.

“We did it!”

“HERE WE GO”

“Huh?”

“TIME TO TRAVEL AGAIN”

Marie felt Atlas pull her towards Maneo. She stretched into a string and shot over to the planet. She was overwhelmed with joy, when she saw Kolos smiling at her with a toothy grin.

“EPIC”

“Epic” Marie smiled and thought.

“Epic” Kolos agreed. “You are our hero Cosmos, Marie, Atlas, Friend.”

Marie glowed with her courage, strength, love, trust, peace, determination, steadfastness, and detachment. She felt like a hero. The drums beat. The music played. The creatures danced. The festivities were wonderful.

Marie stayed for days on Maneo to celebrate. She helped fill in all of the details, so they would have her story. Atlas helped her tell the hard parts. She was humble, but proud to

have made it through her tests.

When it was time to go Marie graciously bowed to Kolos.
“You will always be my friend.”

“And you, mine.” Kolos bowed back.

“Good-bye.”

“I will see you again. The universe has a new hero. She will be needed.”

“Again?”

“AGAIN”

Kolos gave another toothy grin, “There are many stories yet to unfold.”

Marie's eyes got big at the thought of another adventure. Atlas pulled her towards the stars. She stretched into a beam of light and shot straight home.

HOME

Marie looked in the mirror. She could see her wings. They were enormous.

“I thought these would be gone. I thought this would end up in a dream.” It was night, and she was quiet in her room.

“ONLY YOU CAN SEE THEM”

“Cool!”

“ONLY USE THEM WHEN NO ONE IS
LOOKING”

“Will do. I wouldn’t want to give my parents a heart attack.”

“IT IS TIME FOR ME TO GO”

“Go?”

“I AM GOING TO SPREAD SEEDS ON OTHER PLANETS, BUT WILL STILL BE CONNECTED WITH YOU”

“How will I be connected?”

“YOU WILL SEE. UNTIL THEN, BE WELL MY FRIEND”

“Atlas?”

“YES?”

“Thank you. What a wonderful adventure. What a story!”

“YES” Atlas faded. “GOODNIGHT”

Marie felt like she hadn't slept in months. She flopped onto her bed only to see that the sun was starting to rise and glare through her curtain.

“Marie?”

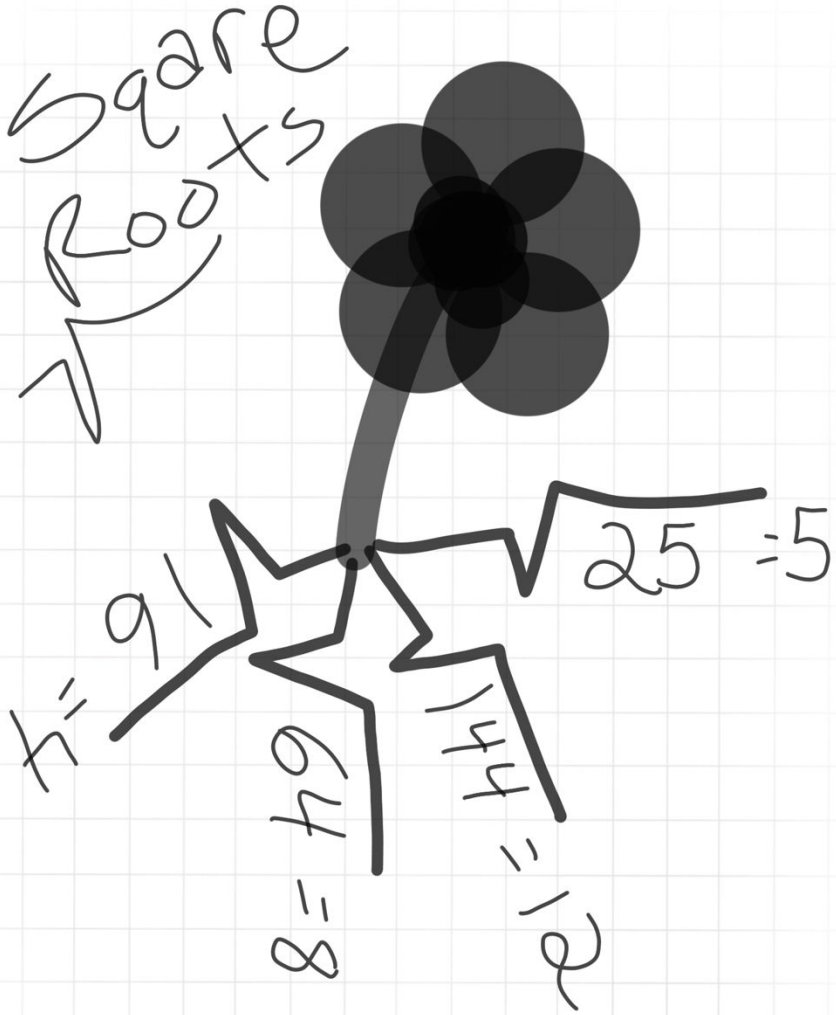
“Mom!” Marie jumped up and hugged her Mom. “I missed you so much.”

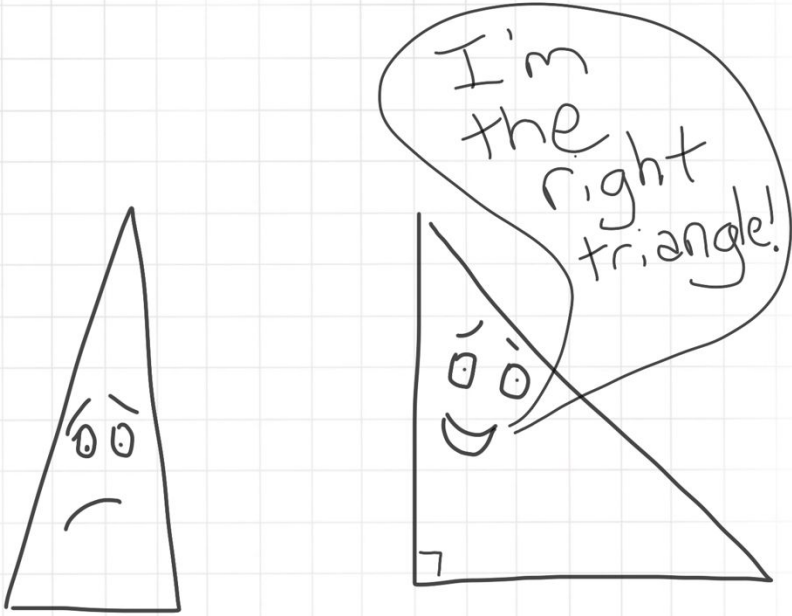
“Huh?” she looked very confused. “What do you mean? Bad dream? It's only been a few hours since you went to bed last night.”

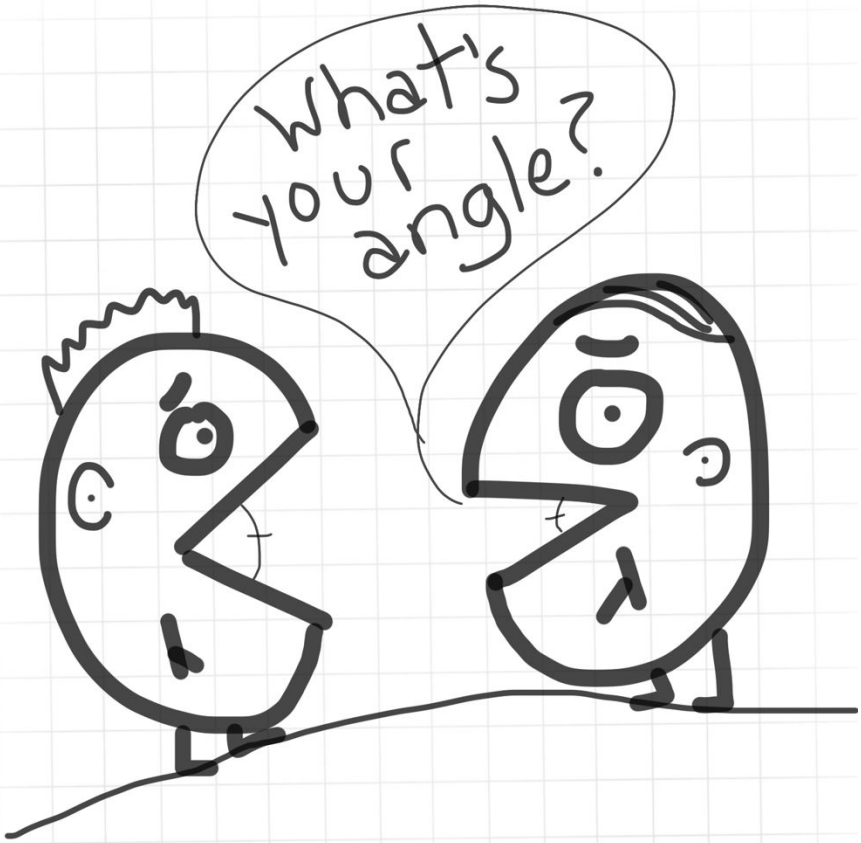
Marie took a minute to process the fact that no time seemed to have passed on earth since she had left. She felt better knowing that her parents hadn't been worried sick.

“Well, Mom, I have one great adventure to tell you.
Where’s Dad? Let’s take a day off for story time.”

A Few Pages From Marie's
Notebook



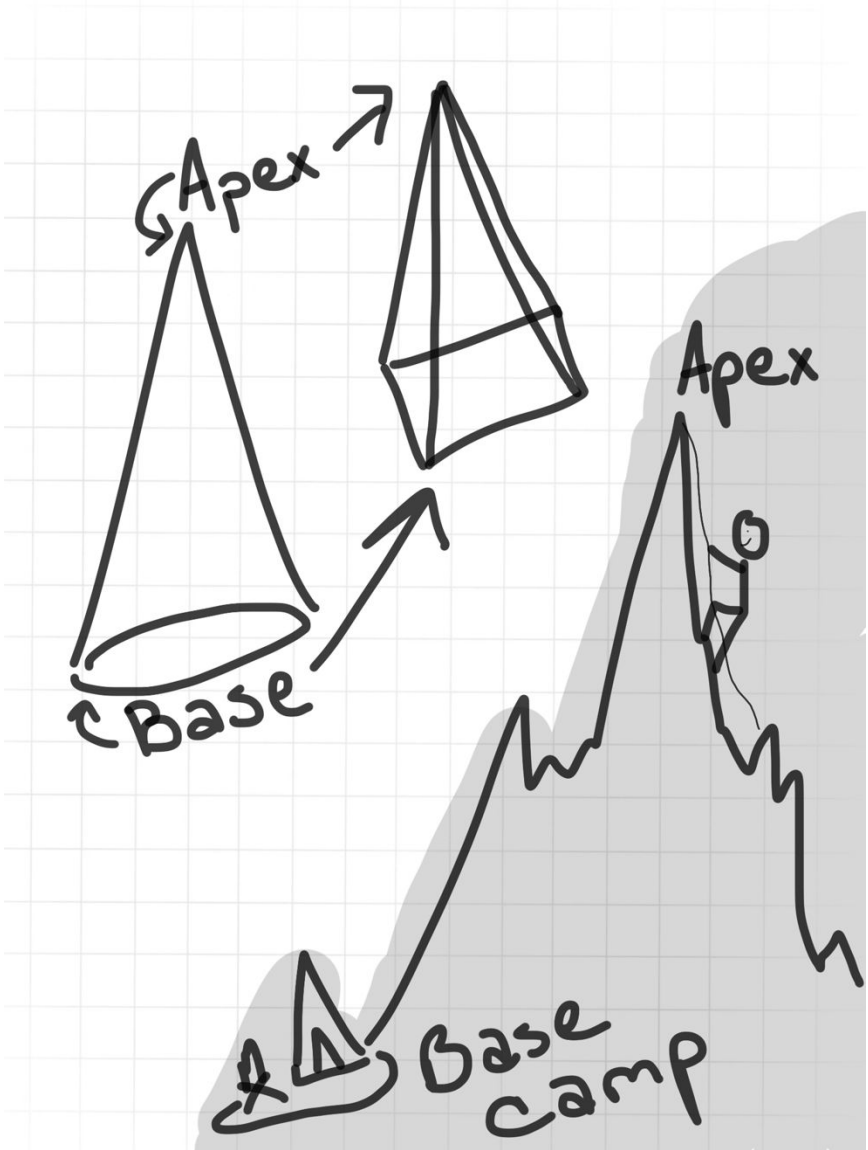






Improper
fraction





$|x|$ is the absolute value,
which is the distance from
"x" to 0 on the number line.

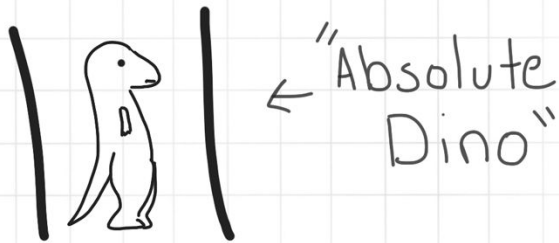
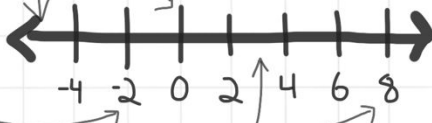
$$|-5| = 5$$

$$|0| = 0$$

$$|-2| = 2$$

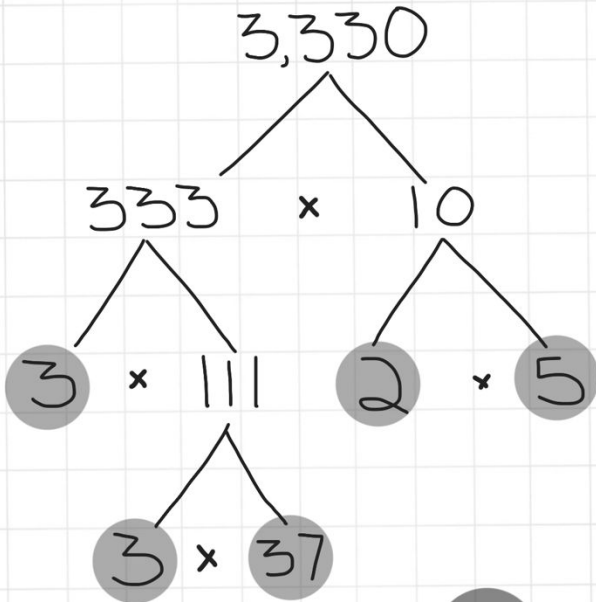
$$|8| = 8$$

$$|3| = 3$$



Break a number
into its prime factors:

Factor Tree (for 3330)



● = prime factors

Exponents

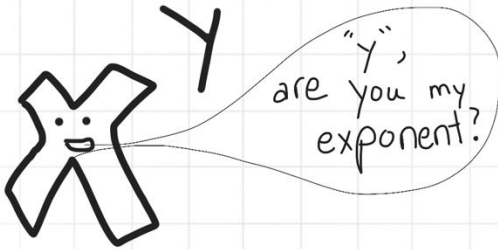
$$5^2 = 5 \times 5 = 25$$

$$2^5 = 2 \times 2 \times 2 \times 2 \times 2 = 32$$

$$3^3 = 3 \times 3 \times 3 = 27$$

$$4^3 = 4 \times 4 \times 4 = 64$$

$$X^Y = \underbrace{X \times X \times X \dots}_{Y \text{ times}}$$



Fun Pattern:

odd
numbers

$$1 = 1 = 1^2$$

$$1 + 3 = 4 = 2^2$$

$$1 + 3 + 5 = 9 = 3^2$$

$$1 + 3 + 5 + 7 = 16 = 4^2$$

$$1 + 3 + 5 + 7 + 9 = 25 = 5^2$$

$$1 + 3 + 5 + 7 + 9 + 11 = 36 = 6^2$$

...

squared
numbers

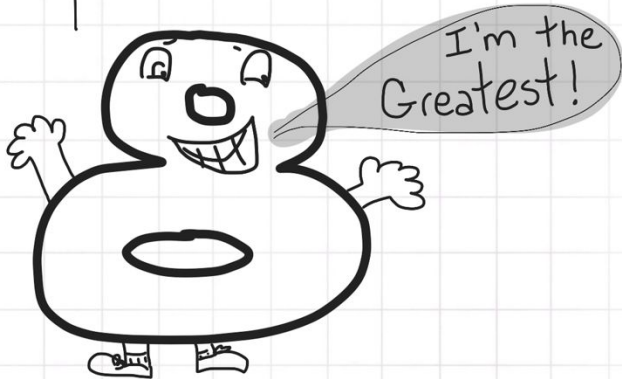
GCD (AKA: Greatest Common Factor)

Greatest Common Divisor

The largest factor (divisor) that two numbers have in common.

GCD of 24 and 32:

	Factors
24	1, 2, 3, 4, 6, 8, 12, 24
32	1, 2, 4, 8, 16, 32



Negative and Positive Multiplication

$$\text{—} \times \text{+} = \text{—}$$

$$\text{—} \times \text{—} = \text{+}$$

$$\text{+} \times \text{—} = \text{—}$$

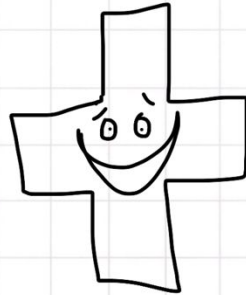
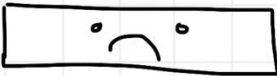
$$\text{+} \times \text{+} = \text{+}$$

$$-5 \times 5 = -25$$

$$-5 \times -5 = 25$$

$$5 \times -5 = -25$$

$$5 \times 5 = 25$$



● Ratio (comparing the size of numbers)

The ratio of 3 dogs to 6 cats.

3 to 6 or $\frac{3}{6}$ or 3:6

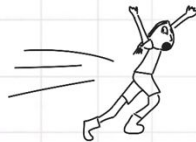
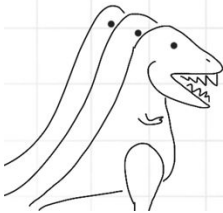
The ratio of 100 flies to 1 sandwich

100 to 1 or $\frac{100}{1}$ or 100:1



The ratio of 3 dinos to me

3:1



Solving (you can do Anything to both sides of the =)

ex1:

$$x + 4 = 7$$

$$\begin{array}{r} -4 \\ -4 \end{array}$$

$$x + 0 = 3$$

$$x = 3$$

-subtract
from
both
sides

ex2:

$$2 \times y = 8$$

$$\frac{2 \times y}{2} = \frac{8}{2}$$

$$1 \times y = 4$$

$$y = 4$$

Divide
both
sides
by 2

ex3:

$$\frac{a}{4} = 2$$

$$\times 4$$

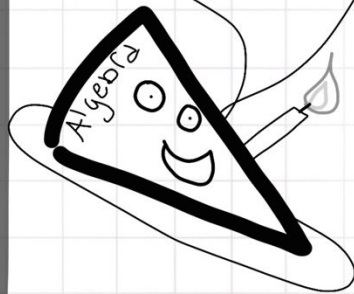
$$\times 4$$

$$\frac{\cancel{4} \cdot a}{\cancel{4}} = 2 \times 4$$

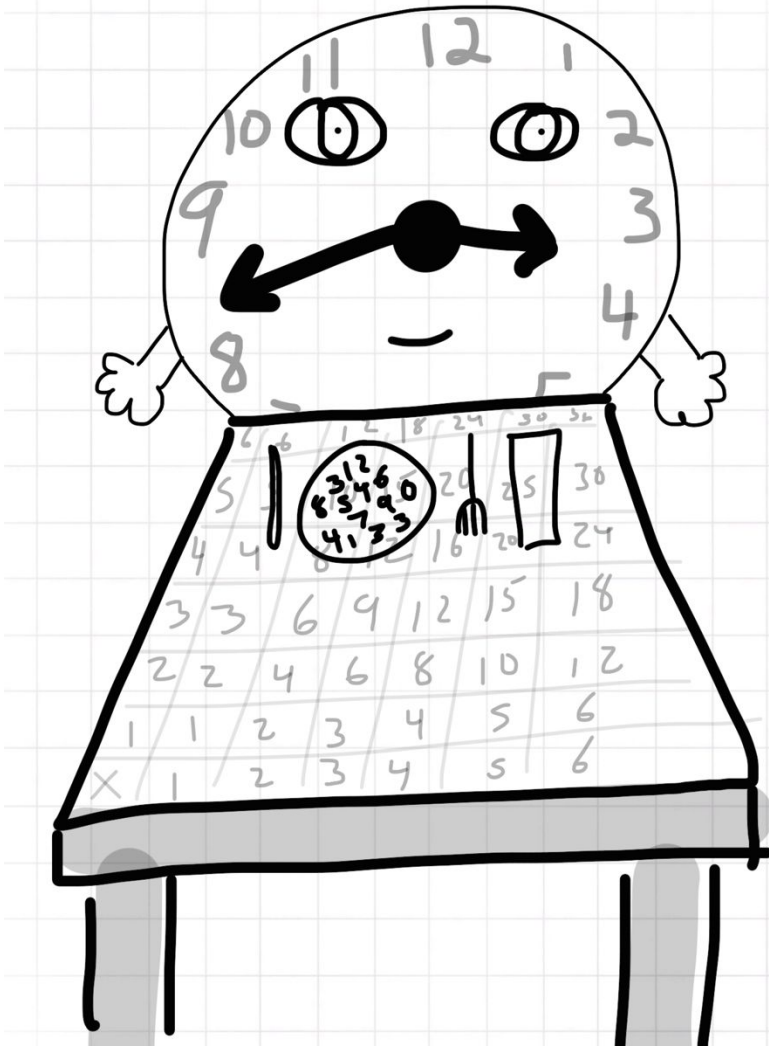
$$a = 8$$

multiply

Algebra
is a piece of
cake.



"Time's Table"



(Tau = 2Pi)
 $\tau = 2\pi$

I'm only half
the value of
 τ ; ; ;

