Mathemalchemy

A comic book adventure in math and art.

Hosler & Hosler

Mathemalchemy

Story and Art by
Jay Hosler & Maxwell Hosler

This is a comic story set in an amazing world created by mathematicians and artists. Mathemalchemy is a multi-media art installation designed, fabricated and constructed by a team of 24 artists and mathematicians, celebrating the beauty, joy and creativity of mathematics in all its forms. The Mathemalchemists worked on the installation mostly during the two calendar years 2020 and '21, when they were all constrained by pandemic restrictions on meeting and travel. In January 2022, the installation started its career as a traveling exhibit. First ports of call were the National Academy of Sciences in Washington DC (Jan-June 2022) and Juniata College (June-December 2022), followed by Boston University (January-March 2023) and University of British Columbia (April-October 2023); URL mathemalchemy.org/events/#upcoming will continue to provide updated information on further tour stops and associated events.

Meet the Mathemalchemists!

Top Row: Emily Baker, Bronna Butler, Edmund Harriss, Elizabeth Paley, Kimberly Roth, Edward Vogel, Dominique Ehrmann, Susan Goldstine;
Middle Row: Dorothy Buck, Rochy Flint, Li-Mei Lim, Kathy Peterson, Henry Segerman, Jake Wildstrom, Vernelle A. A. Noel, Tasha Pruitt;
Bottom Row: Ingrid Daubechies, Faye Goldman, Sabetta Matsumoto, Samantha Pezzimenti, Jessica K. Sklar, Mary William, Daina Taimina, Carolyn Yackel.

Mathemalchemy was supported by these generous sponsors!

RHODES INFORMATION INITIATIVE AT DUKE UNIVERSITY

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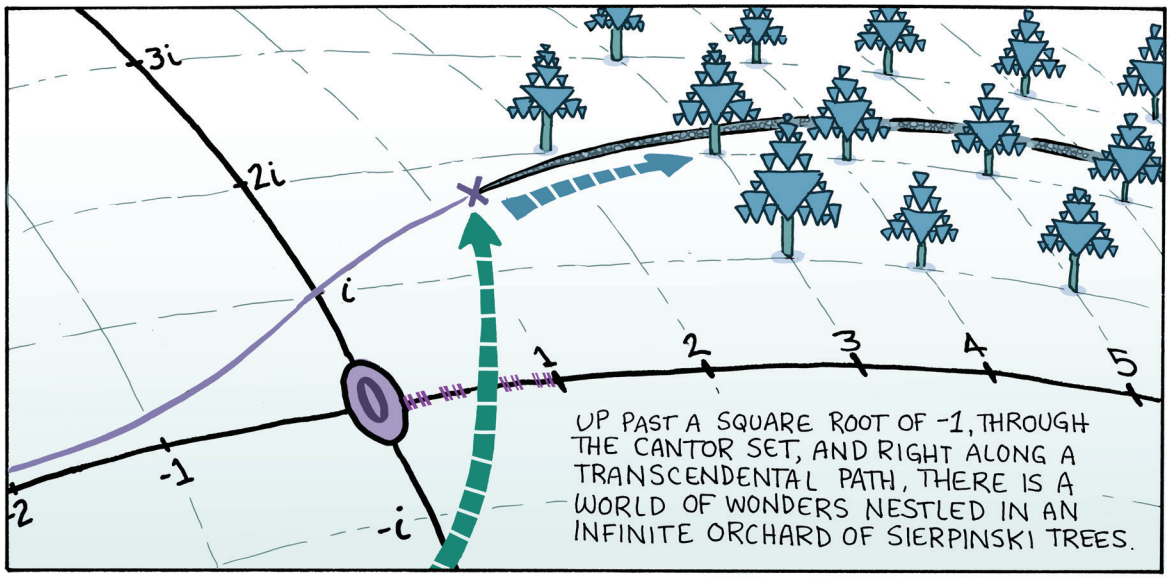
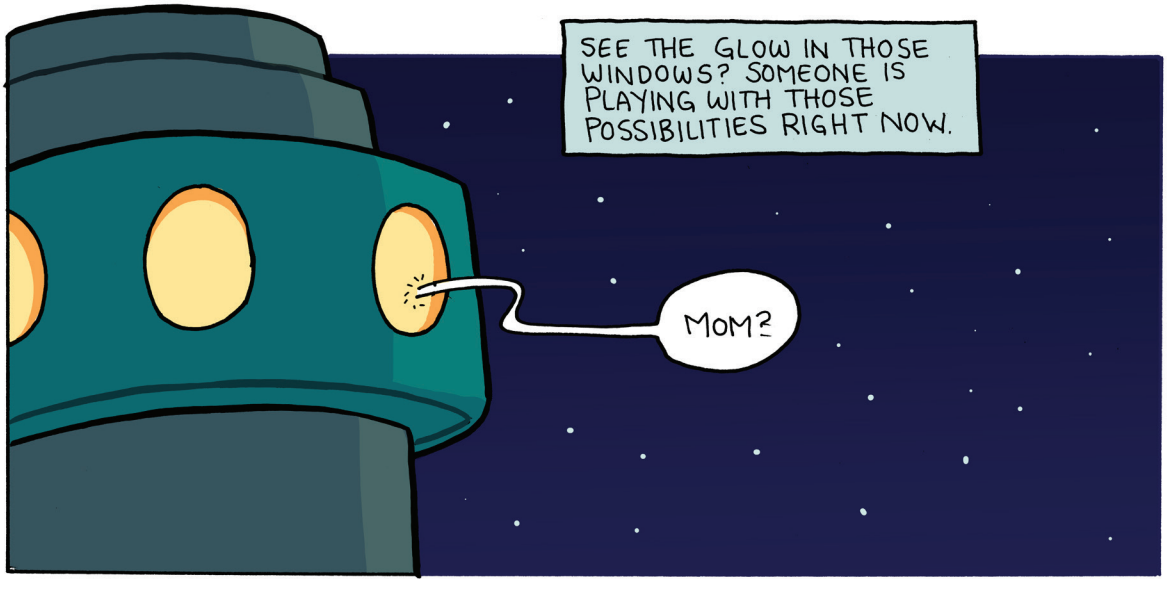
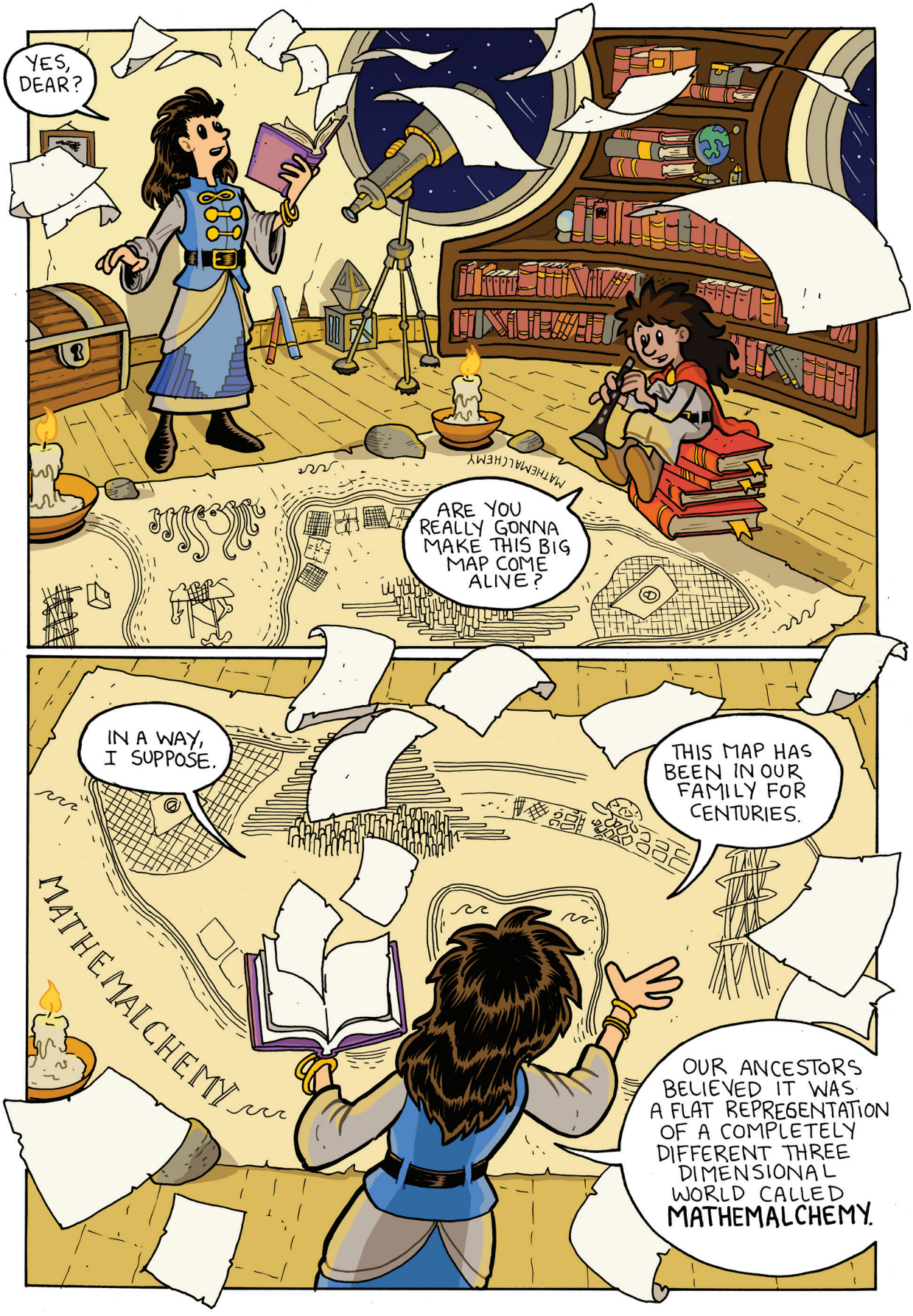
Juniata College IEI Innovative Educational Initiatives


3i
2i
i
-i
-2
-1
0
1
2
3
4
5
UP PAST A SQUARE ROOT OF -1, THROUGH THE CANTOR SET, AND RIGHT ALONG A TRANSCENDENTAL PATH, THERE IS A WORLD OF WONDERS NESTLED IN AN INFINITE ORCHARD OF SIERPINSKI TREES.


IT'S A STRANGE REALM WHERE MATH AND MAGIC SWIRL TOGETHER IN A GREAT NEXUS OF POSSIBILITIES.


SEE THE GLOW IN THOSE WINDOWS? SOMEONE IS PLAYING WITH THOSE POSSIBILITIES RIGHT NOW.
MOM?


YES, DEAR?
ARE YOU REALLY GONNA MAKE THIS BIG MAP COME ALIVE?
MATHEMALCHEMY
IN A WAY, I SUPPOSE.
THIS MAP HAS BEEN IN OUR FAMILY FOR CENTURIES.
MATHEMALCHEMY
OUR ANCESTORS BELIEVED IT WAS A FLAT REPREGENTATION OF A COMPLETELY DIFFERENT THREE DIMENSIONAL WORLD CALLED MATHEMALCHEMY.

"THREE DIMENSIONAL?"

LIKE LENGTH, DEPTH, AND WIDTH?

THOSE DIMENSIONS?

YES!

OUR ANCESTORS BELIEVED THIS MAP WAS A SPECIAL PLACE WHERE THE THREE DIMENSIONS OF **OUR** WORLD...

LENGTH

DEPTH

WIDTH

... AND THE THREE DIMENSIONS OF MATHEMALCHEMY...

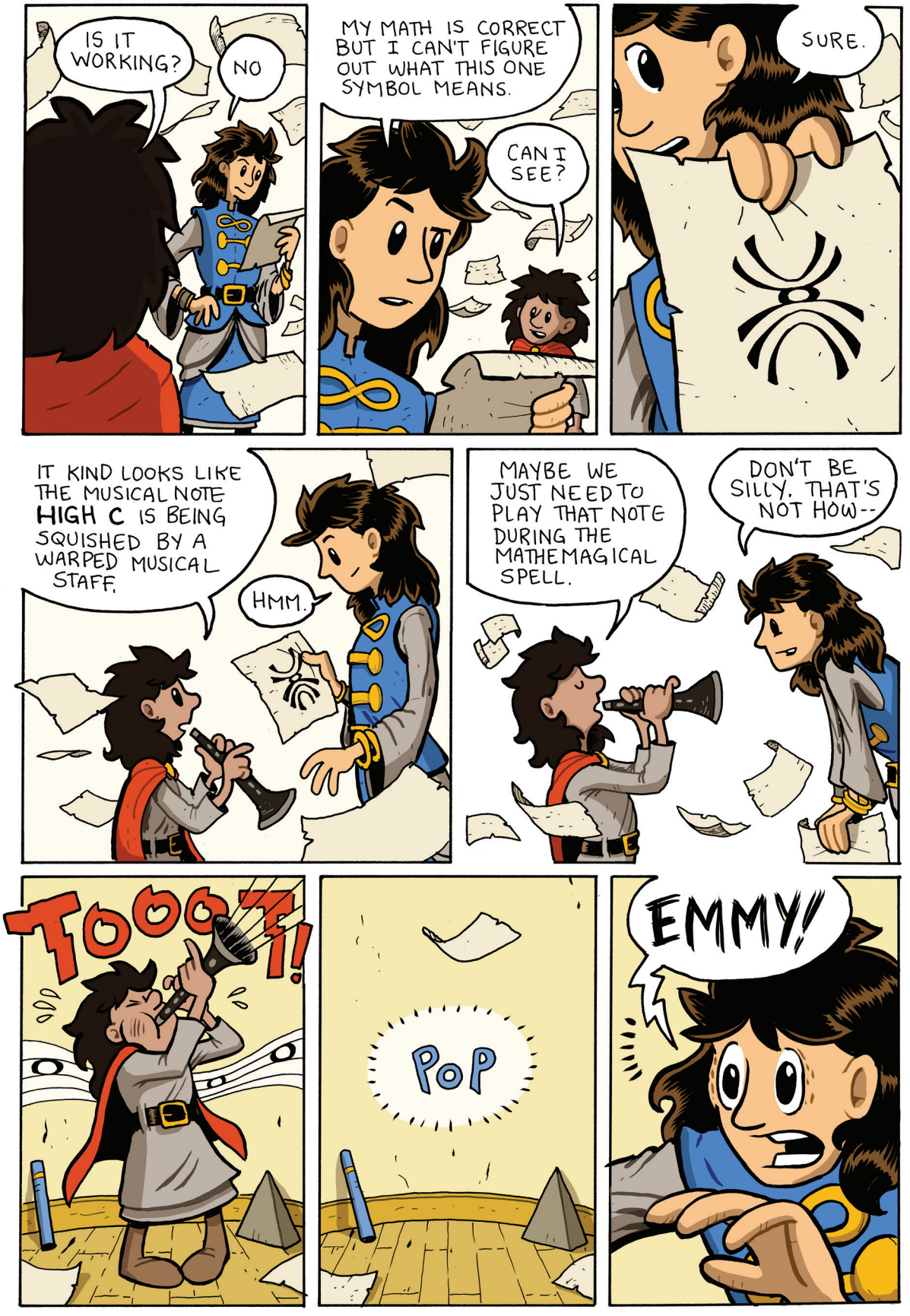
...OVERLAP!

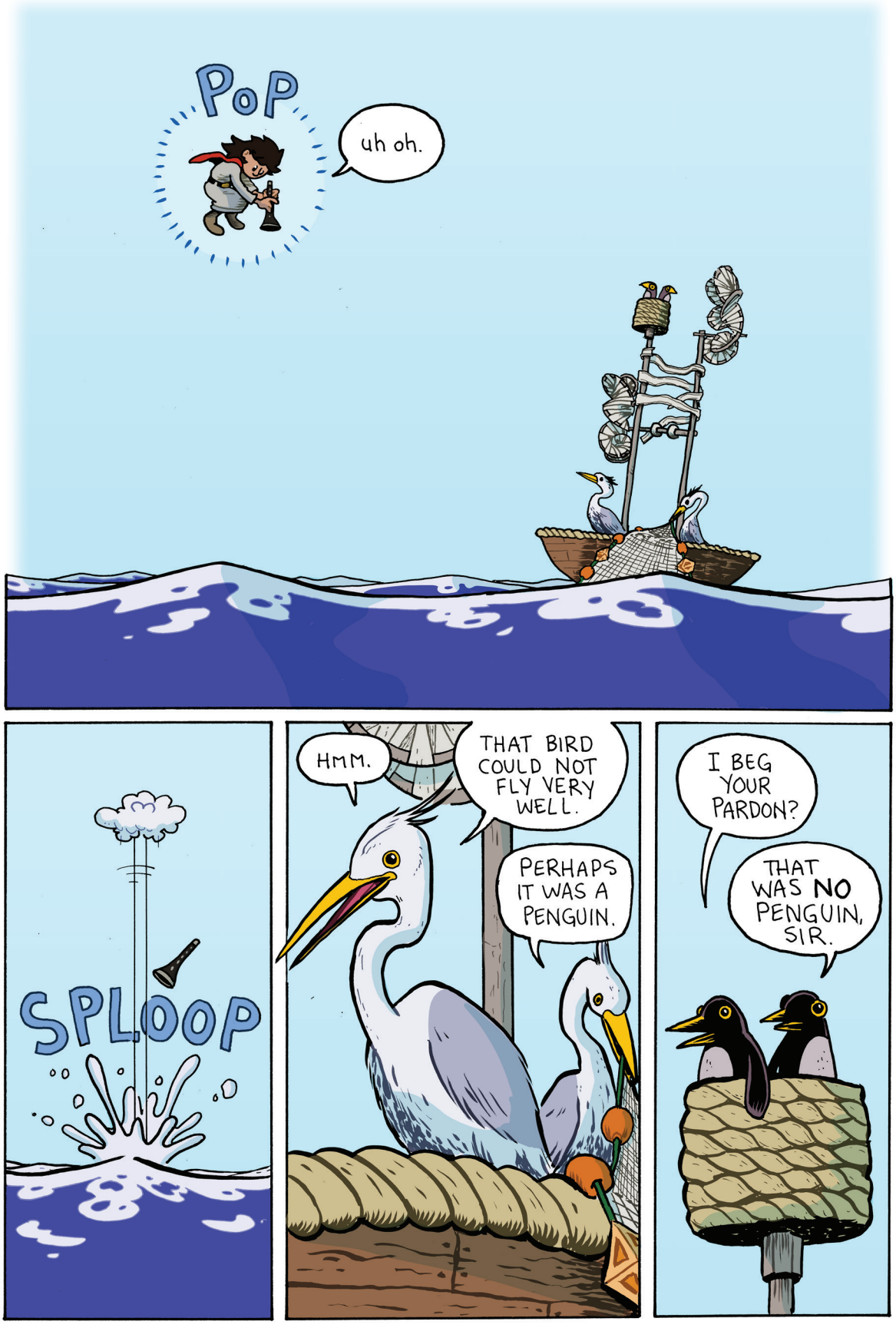
BUT IT'S NOT A **COMPLETE** OVERLAP?

VERY GOOD.

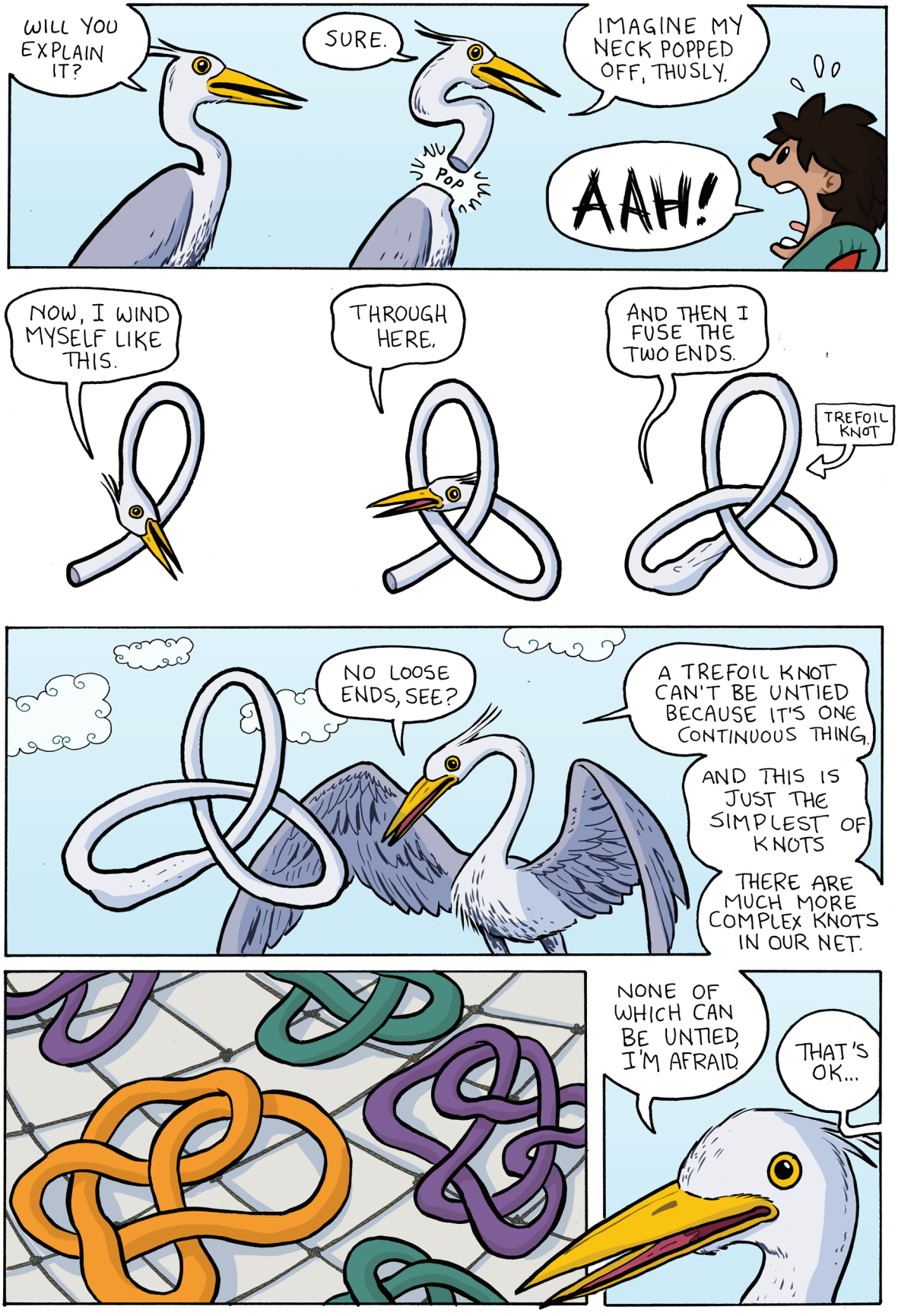
THE FLAT MAP ONLY SHOWS TWO OF THEIR DIMENSIONS.

I'M LOOKING FOR THE EQUATION TO UNLOCK THEIR THIRD DIMENSION.


IS IT WORKING?
NO
MY MATH IS CORRECT BUT I CAN'T FIGURE OUT WHAT THIS ONE SYMBOL MEANS.
CAN I SEE?
SURE.
IT KIND LOOKS LIKE THE MUSICAL NOTE HIGH C IS BEING SQUISHED BY A WARPED MUSICAL STAFF.
HMM.
MAYBE WE JUST NEED TO PLAY THAT NOTE DURING THE MATHEMAGICAL SPELL.
DON'T BE SILLY. THAT'S NOT HOW--
TOOOT!
POP
EMMY!

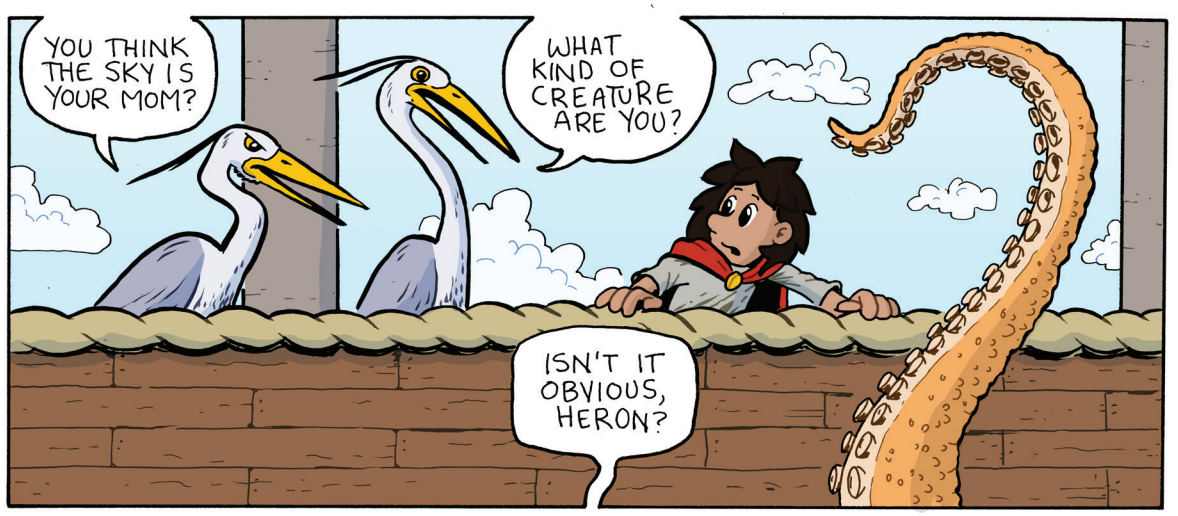

POP
uh oh.
SPLOOP
HMM.
THAT BIRD COULD NOT FLY VERY WELL.
PERHAPS IT WAS A PENGUIN.
I BEG YOUR PARDON?
THAT WAS NO PENGUIN, SIR.


WELL, WHATEVER IT IS, IT'S STUCK IN OUR NET.
I HOPE IT HASN'T DAMAGED ANY OF THE KNOTS WE'VE CAUGHT.
please
HELP ME.
IT'S TANGLED IN A TREFOIL KNOT.
YOU'RE A SLIMEY FISH. CAN'T YOU JUST WRIGGLE OUT?
I'M NOT A FISH!
BUT...
...YOU WERE IN THE WATER.
WE SAW YOU.
PLEASE. THIS THING IS REALLY TIGHT. CAN'T YOU JUST UNTIE ME?
IMPOSSIBLE.
A TREFOIL IS A NON-TRIVIAL MATHEMATICAL KNOT.
IT HAS NO LOOSE ENDS. IT CAN'T BE UNTIED.
WHAT?

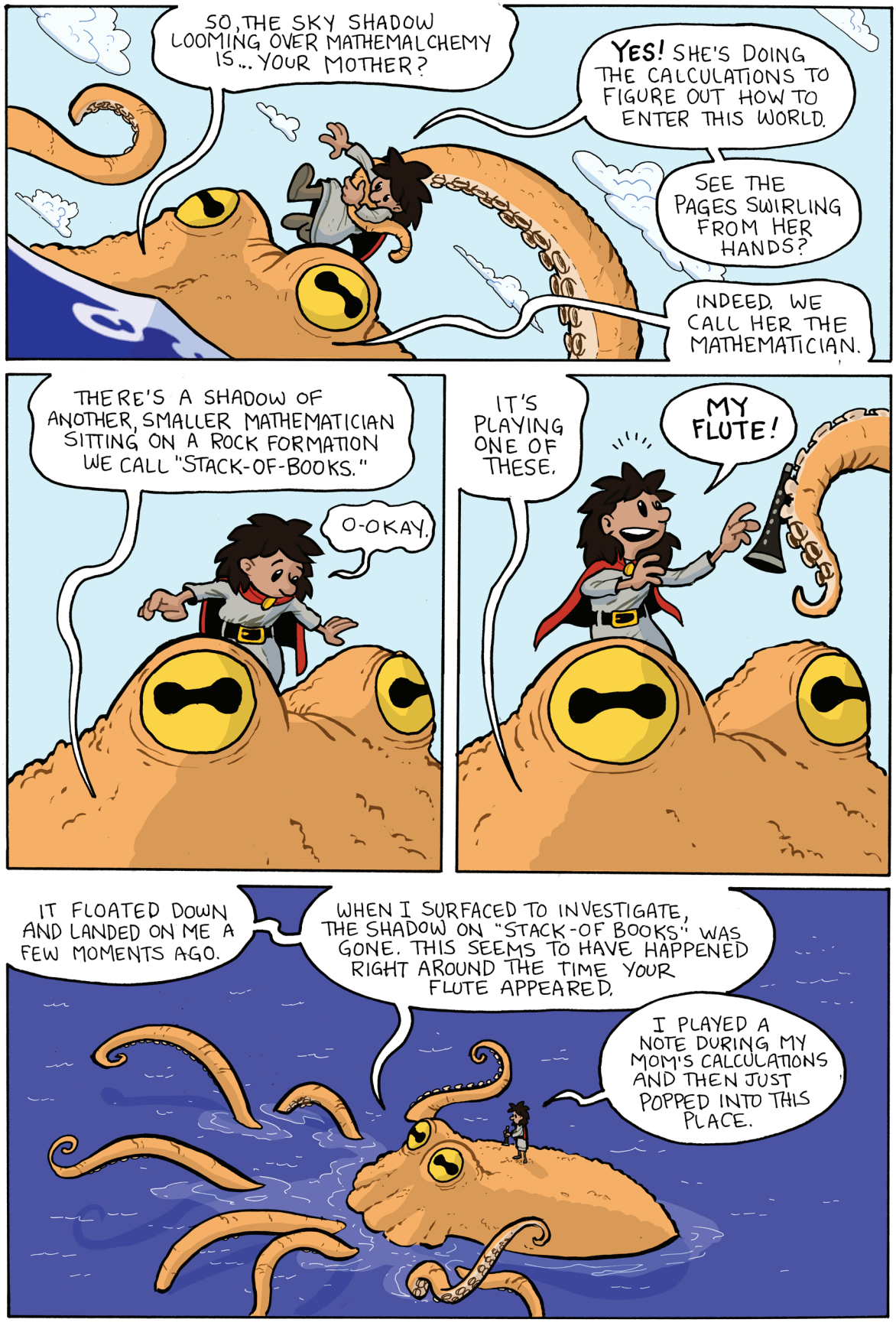

WILL YOU EXPLAIN IT?
SURE.
POP
IMAGINE MY NECK POPPED OFF, THUSLY.
AAH!
NOW, I WIND MYSELF LIKE THIS.
THROUGH HERE.
AND THEN I FUSE THE TWO ENDS.
TREFOIL KNOT
NO LOOSE ENDS, SEE?
A TREFOIL KNOT CAN'T BE UNTIED BECAUSE IT'S ONE CONTINUOUS THING.
AND THIS IS JUST THE SIMPLEST OF KNOTS
THERE ARE MUCH MORE COMPLEX KNOTS IN OUR NET.
NONE OF WHICH CAN BE UNTIED, I'M AFRAID.
THAT'S OK...

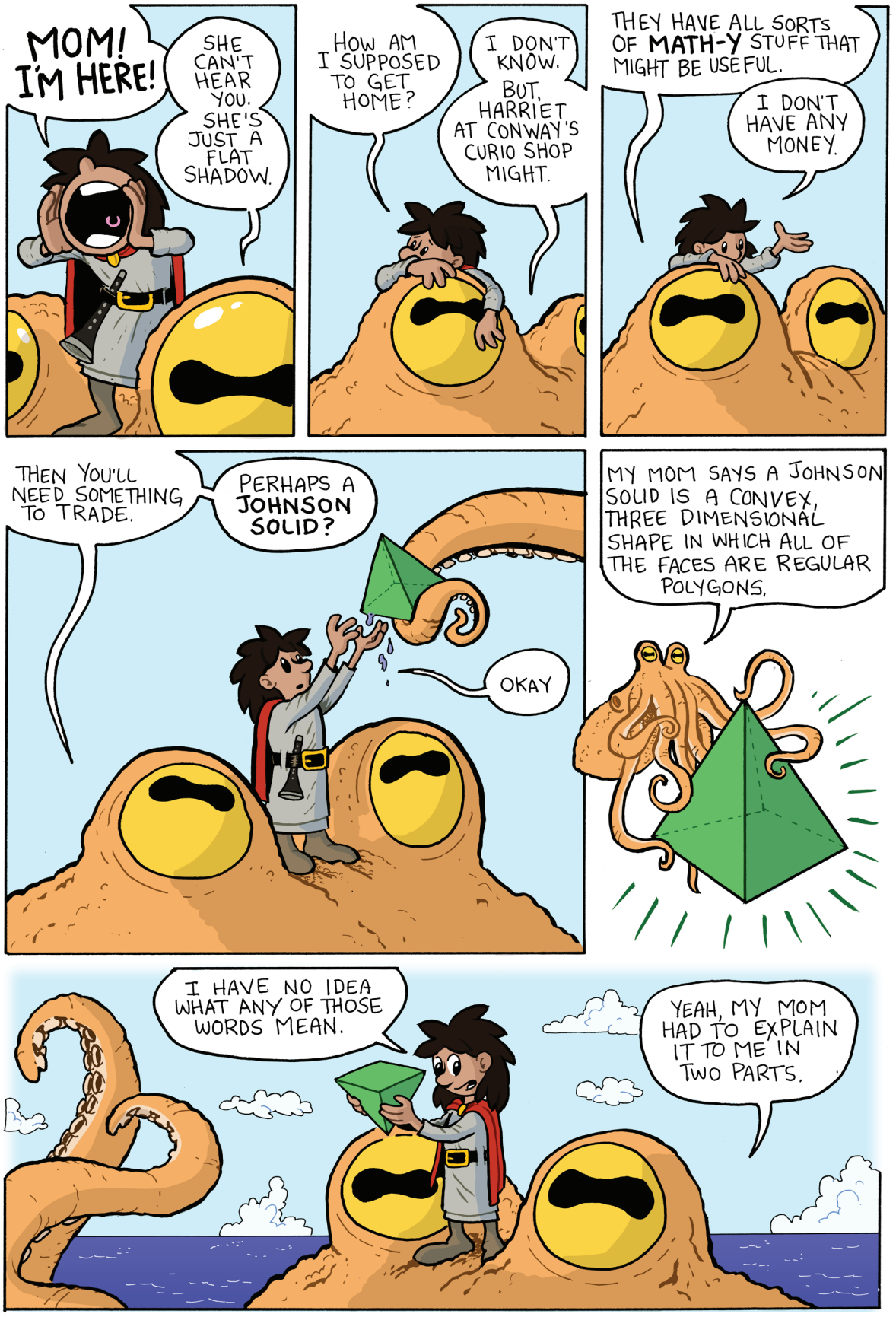

I MADE SOME LOOSE ENDS.
SKEOOW! SHE CHEWED IT APART!
TSK! IT'S NOT A KNOT NOW!
DON'T FREAK OUT, I'LL FIX IT.
HOW'S THIS?
YOU'VE COMPLETELY CHANGED THE SPECIES.
WE CAN'T STUDY THAT!
WHY NOT?
THAT'S AN UNKNOT!
IT'S LITERALLY A BIG ZERO!
I... I'M SORRY. I D-DON'T KNOW WHAT'S GOING ON.
JUST STAND OVER THERE AND DON'T BREAK ANYTHING ELSE.
MOM?

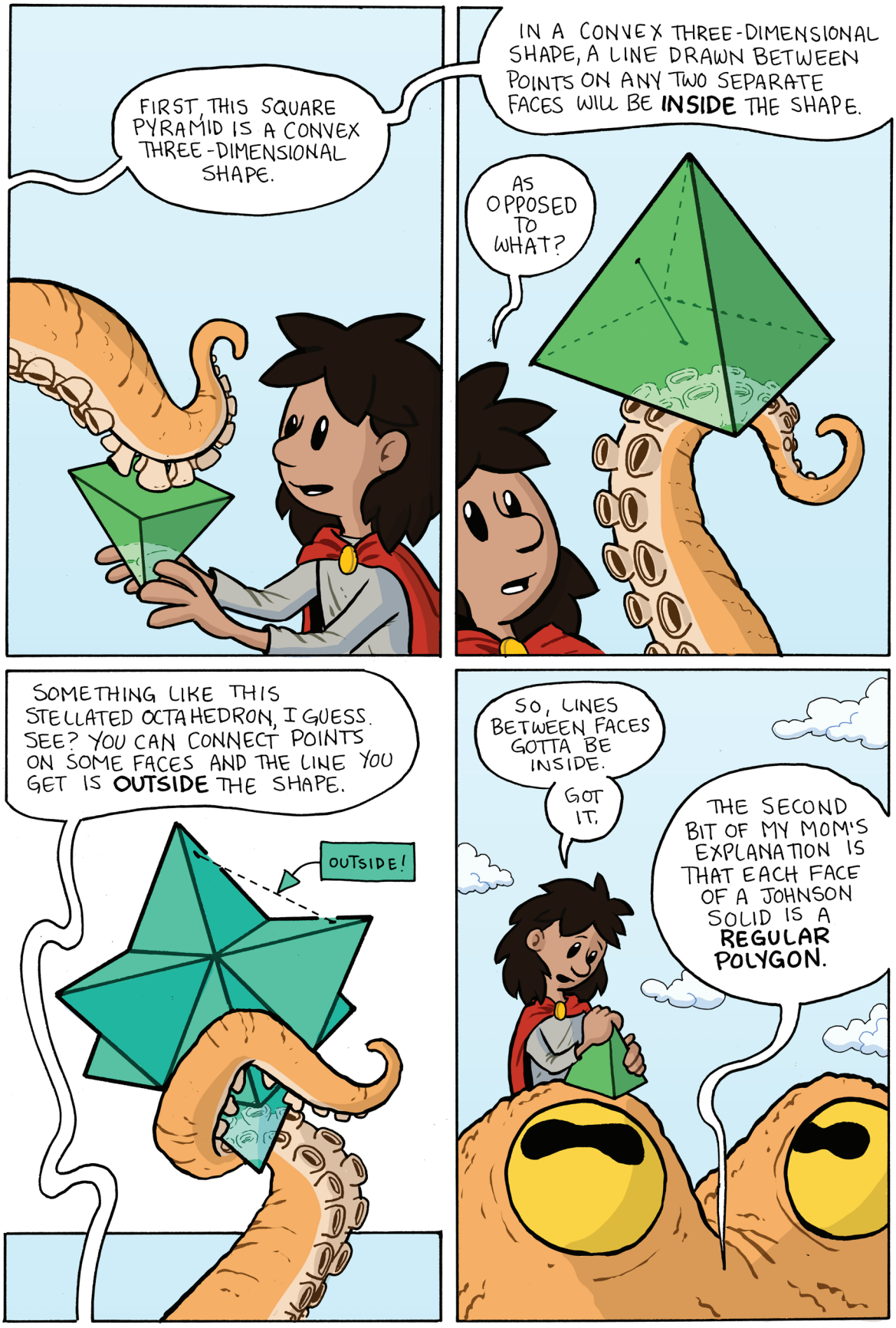

MOM!


YOU THINK THE SKY IS YOUR MOM?
WHAT KIND OF CREATURE ARE YOU?
ISN'T IT OBVIOUS, HERON?


SHE'S A MATHEMATICIAN.
AAAAAA
FINISHED?
ALMOST.
AAAAAAAAA
cough
HUFF PUFF
OKAY... ...ALL... ...DONE.
GOOD.

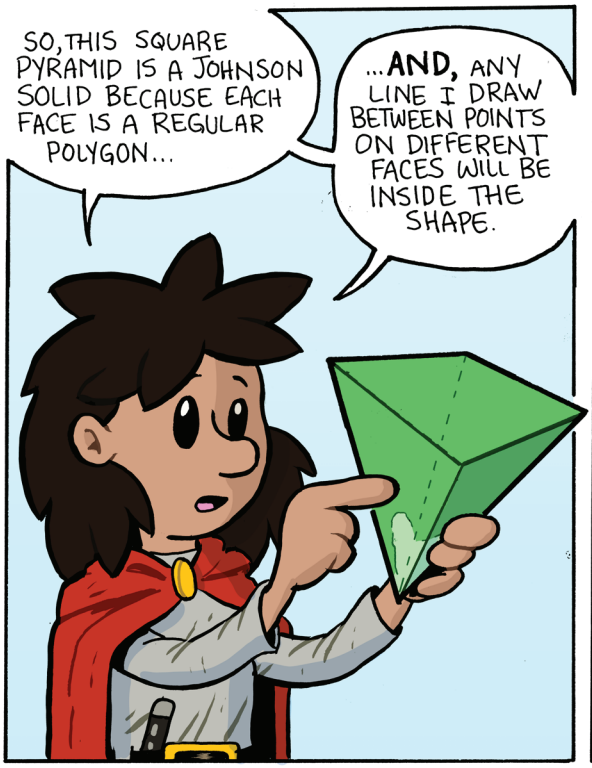

SO, THE SKY SHADOW LOOMING OVER MATHEMALCHEMY IS... YOUR MOTHER?
YES! SHE'S DOING THE CALCULATIONS TO FIGURE OUT HOW TO ENTER THIS WORLD.
SEE THE PAGES SWIRLING FROM HER HANDS?
INDEED. WE CALL HER THE MATHEMATICIAN.
THERE'S A SHADOW OF ANOTHER, SMALLER MATHEMATICIAN SITTING ON A ROCK FORMATION WE CALL "STACK-OF-BOOKS."
O-OKAY.
IT'S PLAYING ONE OF THESE.
MY FLUTE!
IT FLOATED DOWN AND LANDED ON ME A FEW MOMENTS AGO.
WHEN I SURFACED TO INVESTIGATE, THE SHADOW ON "STACK-OF BOOKS" WAS GONE. THIS SEEMS TO HAVE HAPPENED RIGHT AROUND THE TIME YOUR FLUTE APPEARED.
I PLAYED A NOTE DURING MY MOM'S CALCULATIONS AND THEN JUST POPPED INTO THIS PLACE.

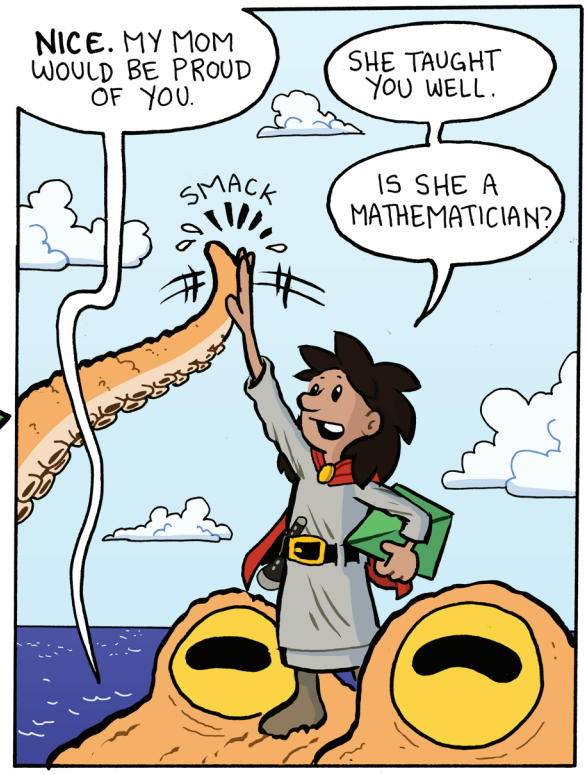

MOM! I'M HERE!
SHE CAN'T HEAR YOU. SHE'S JUST A FLAT SHADOW.
HOW AM I SUPPOSED TO GET HOME?
I DON'T KNOW. BUT, HARRIET AT CONWAY'S CURIO SHOP MIGHT.
THEY HAVE ALL SORTS OF MATH-Y STUFF THAT MIGHT BE USEFUL.
I DON'T HAVE ANY MONEY.
THEN YOU'LL NEED SOMETHING TO TRADE.
PERHAPS A JOHNSON SOLID?
OKAY
MY MOM SAYS A JOHNSON SOLID IS A CONVEX, THREE DIMENSIONAL SHAPE IN WHICH ALL OF THE FACES ARE REGULAR POLYGONS.
I HAVE NO IDEA WHAT ANY OF THOSE WORDS MEAN.
YEAH, MY MOM HAD TO EXPLAIN IT TO ME IN TWO PARTS.

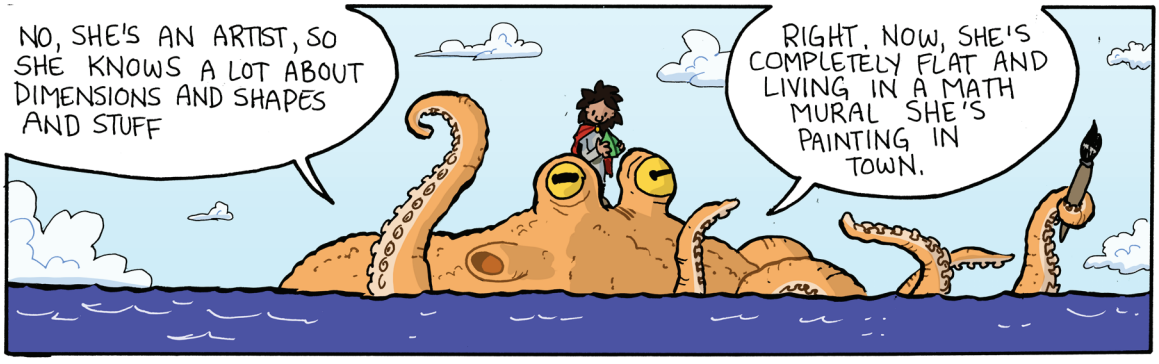

FIRST, THIS SQUARE PYRAMID IS A CONVEX THREE-DIMENSIONAL SHAPE.
IN A CONVEX THREE-DIMENSIONAL SHAPE, A LINE DRAWN BETWEEN POINTS ON ANY TWO SEPARATE FACES WILL BE **INSIDE** THE SHAPE.
AS OPPOSED TO WHAT?
SOMETHING LIKE THIS STELLATED OCTAHEDRON, I GUESS. SEE? YOU CAN CONNECT POINTS ON SOME FACES AND THE LINE YOU GET IS **OUTSIDE** THE SHAPE.
OUTSIDE!
SO, LINES BETWEEN FACES GOTTA BE INSIDE.
GOT IT.
THE SECOND BIT OF MY MOM'S EXPLANATION IS THAT EACH FACE OF A JOHNSON SOLID IS A **REGULAR POLYGON.**

A POLYGON IS A SHAPE WITH AT LEAST THREE STRAIGHT SIDES AND THREE ANGLES.

BUT IN A **REGULAR** POLYGON ALL THE ANGLES ARE EQUAL AND ALL SIDES ARE EQUAL LENGTH.

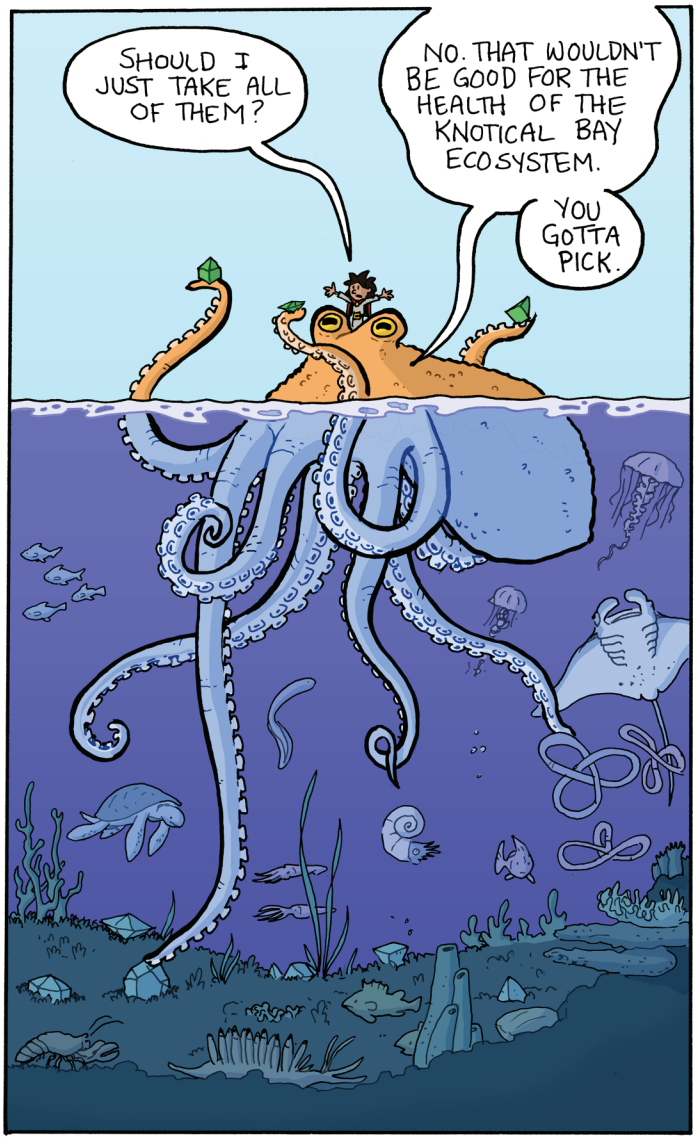




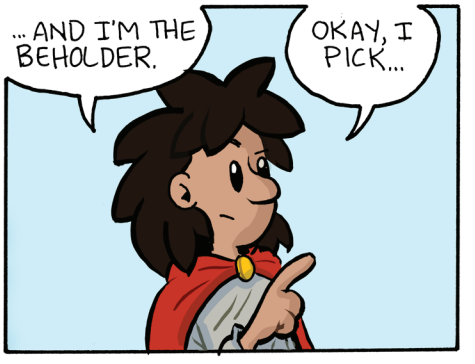


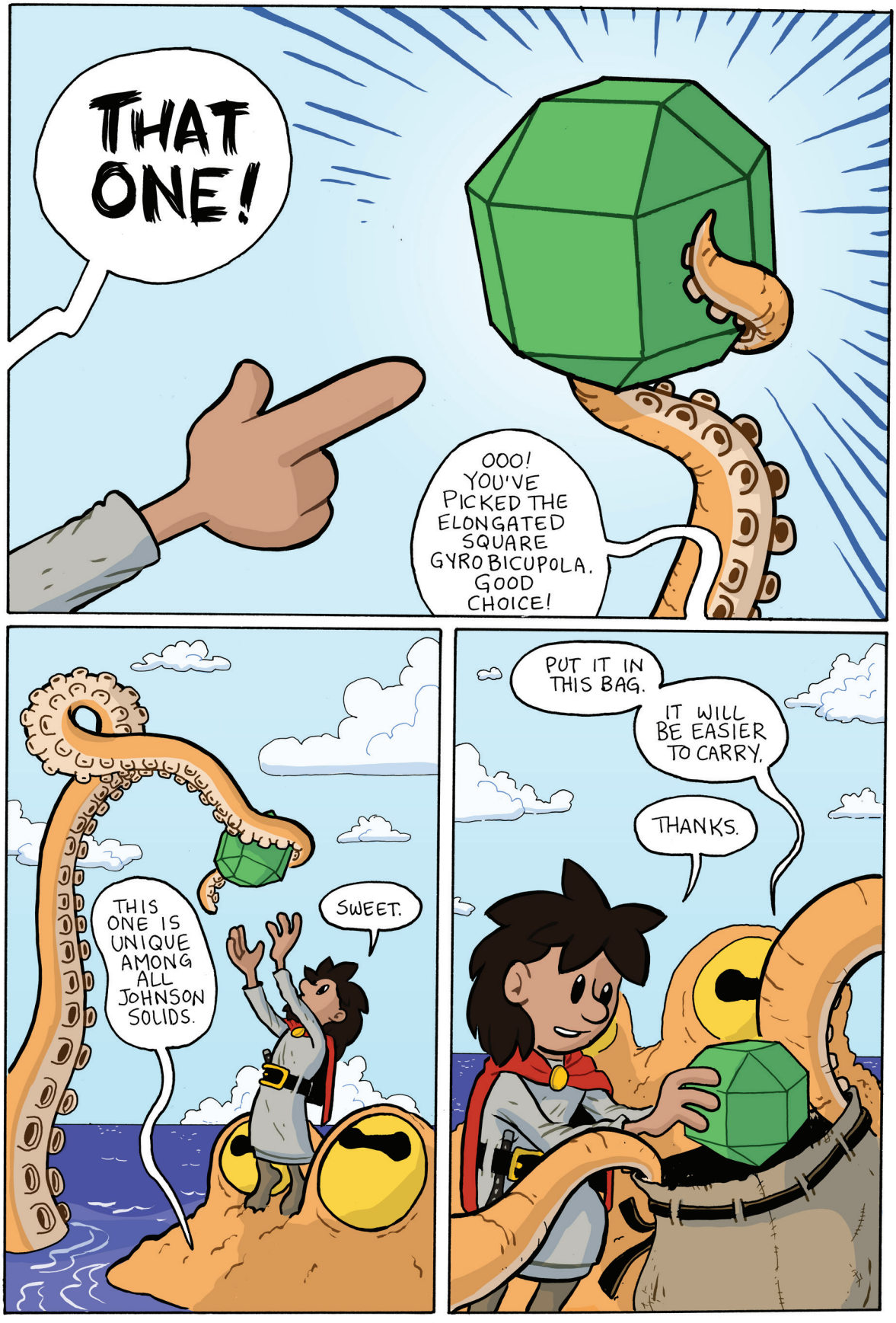

SHOULD I TAKE THIS ONE TO TRADE?
MAYBE, BUT LET'S LOOK AT A FEW MORE.


WHOA!
THERE'S A LOT.
THESE ARE ONLY A FEW.
THERE ARE ALMOST 100 JOHNSON SOLIDS.

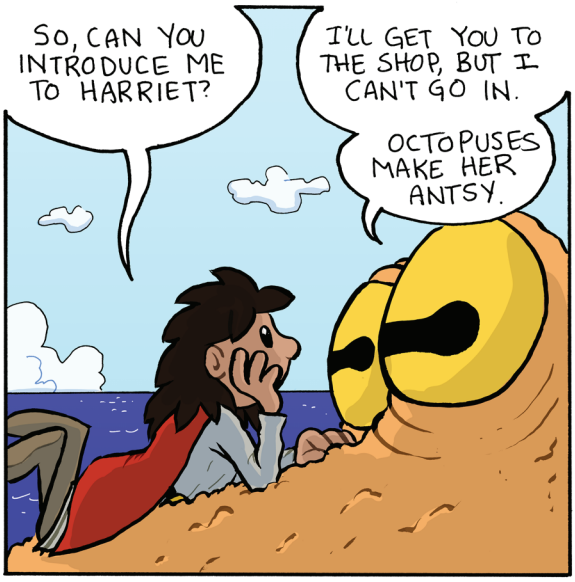

SHOULD I JUST TAKE ALL OF THEM?
NO. THAT WOULDN'T BE GOOD FOR THE HEALTH OF THE KNOTICAL BAY ECOSYSTEM.
YOU GOTTA PICK.

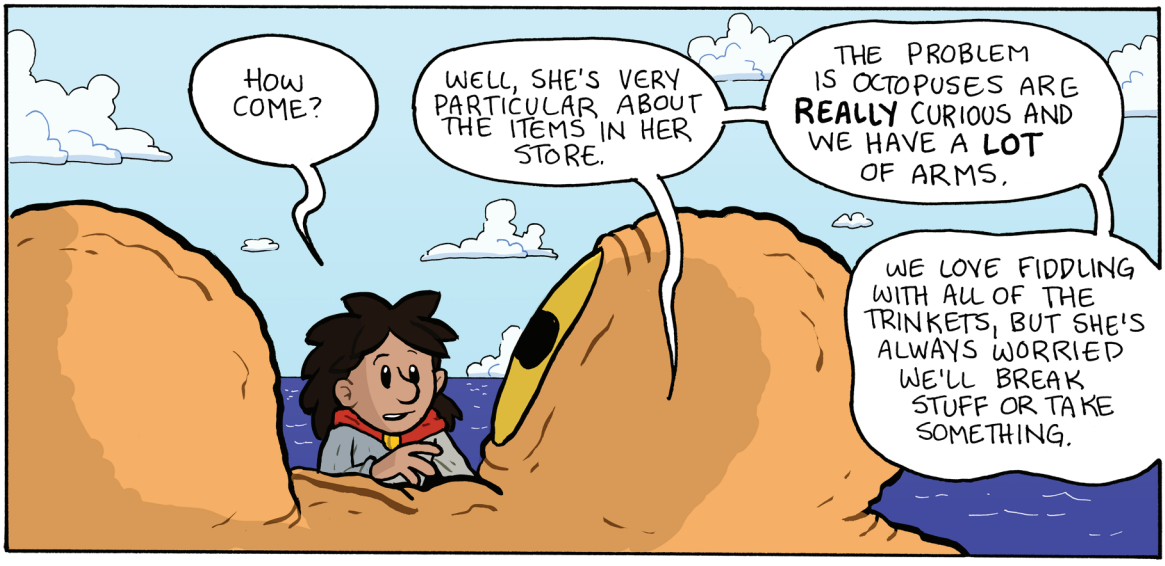

BUT... WHICH ONE IS BEST?
MY MOM SAYS MATHEMATICS AND ART ARE BOTH BEAUTIFUL, BUT THAT THEIR BEAUTY LIES IN THE EYE OF THE BEHOLDER.


...AND I'M THE BEHOLDER.
OKAY, I PICK...


THAT ONE!
OOO! YOU'VE PICKED THE ELONGATED SQUARE GYROBICUPOLA. GOOD CHOICE!
THIS ONE IS UNIQUE AMONG ALL JOHNSON SOLIDS.
SWEET.
PUT IT IN THIS BAG.
IT WILL BE EASIER TO CARRY.
THANKS.


I CAN PUT MY FLUTE IN HERE, TOO.


SO, CAN YOU INTRODUCE ME TO HARRIET?
I'LL GET YOU TO THE SHOP, BUT I CAN'T GO IN.
OCTOPUSES MAKE HER ANTSY.


HOW COME?
WELL, SHE'S VERY PARTICULAR ABOUT THE ITEMS IN HER STORE.
THE PROBLEM IS OCTOPUSES ARE **REALLY** CURIOUS AND WE HAVE A **LOT** OF ARMS.
WE LOVE FIDDLING WITH ALL OF THE TRINKETS, BUT SHE'S ALWAYS WORRIED WE'LL BREAK STUFF OR TAKE SOMETHING.

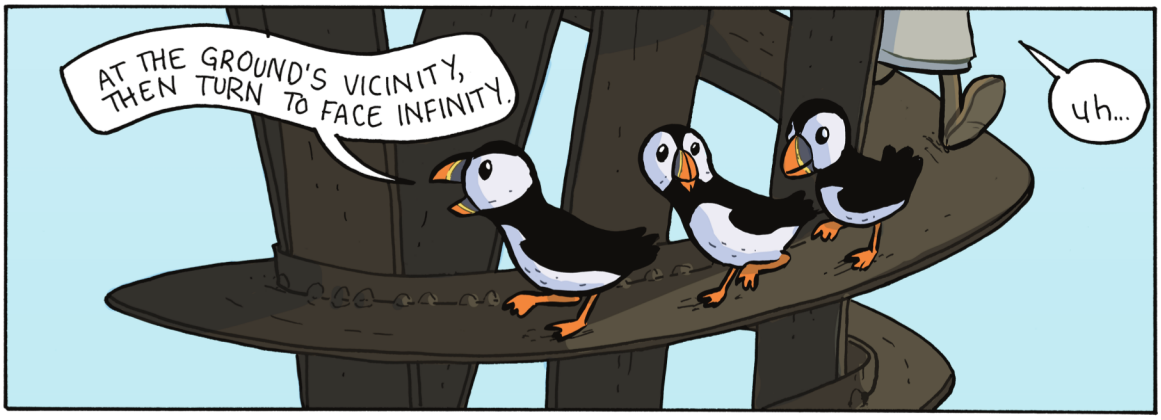

DID YOU EVER?
OF COURSE NOT, BUT WHEN I WAS LITTLE I **DID** GET STUCK IN ONE OF HER KLEIN BOTTLES.
IT TOOK ME FOREVER TO GET OUT.


WHOA. IS THAT MATHEMALCHEMY?
YEP.


PRETTY COOL, HUH?


THANKS FOR ALL OF THE HELP. I'M EMMY, BY THE WAY.
NICE TO MEET YOU, EMMY. I'M CAYLEY.
WHOOP. WHAT ARE YOU DOING?
THE CURIO SHOP ISN'T OPEN YET.
I'M GONNA DROP YOU OFF SOMEWHERE SCENIC.
gulp... IT'S PRETTY HIGH UP...
...and there's no guardrail...
THIS IS THE LIGHTHOUSE, HONORED GUEST. HOW CAN WE HELP YOU ON YOUR QUEST?
HEY, DEL AND NABLA, WOULD YOU SHOW MY FRIEND EMMY HOW TO GET TO THE CURIO SHOP? SHE'S A MATHEMATICIAN.
WE'LL TELL THE WAY YOU MUST TRAVERSE IN COUPLETS OF OUR RYHMING VERSE.
OH! THAT'S ...uh... VERY CLEVER.

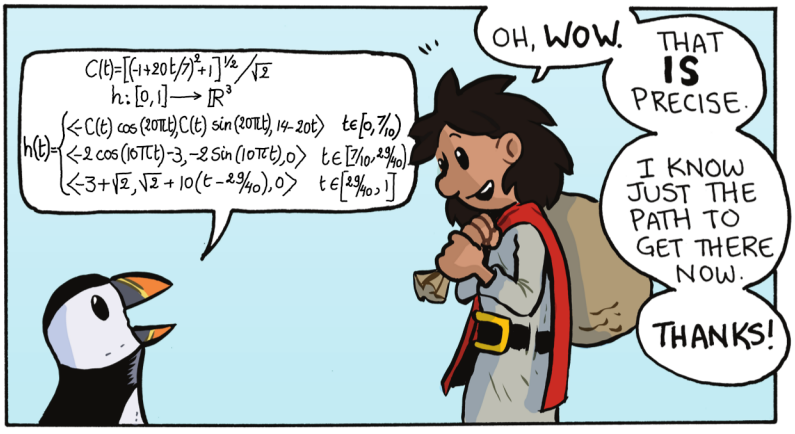

THE WAY TO GO IS DOWN AND ROUND UNTIL YOU WALK UPON THE GROUND.
SO, I JUST WALK DOWN THIS RAMP TO GET TO THE CURIO SHOP?


AT THE GROUND'S VICINITY, THEN TURN TO FACE INFINITY.
uh...

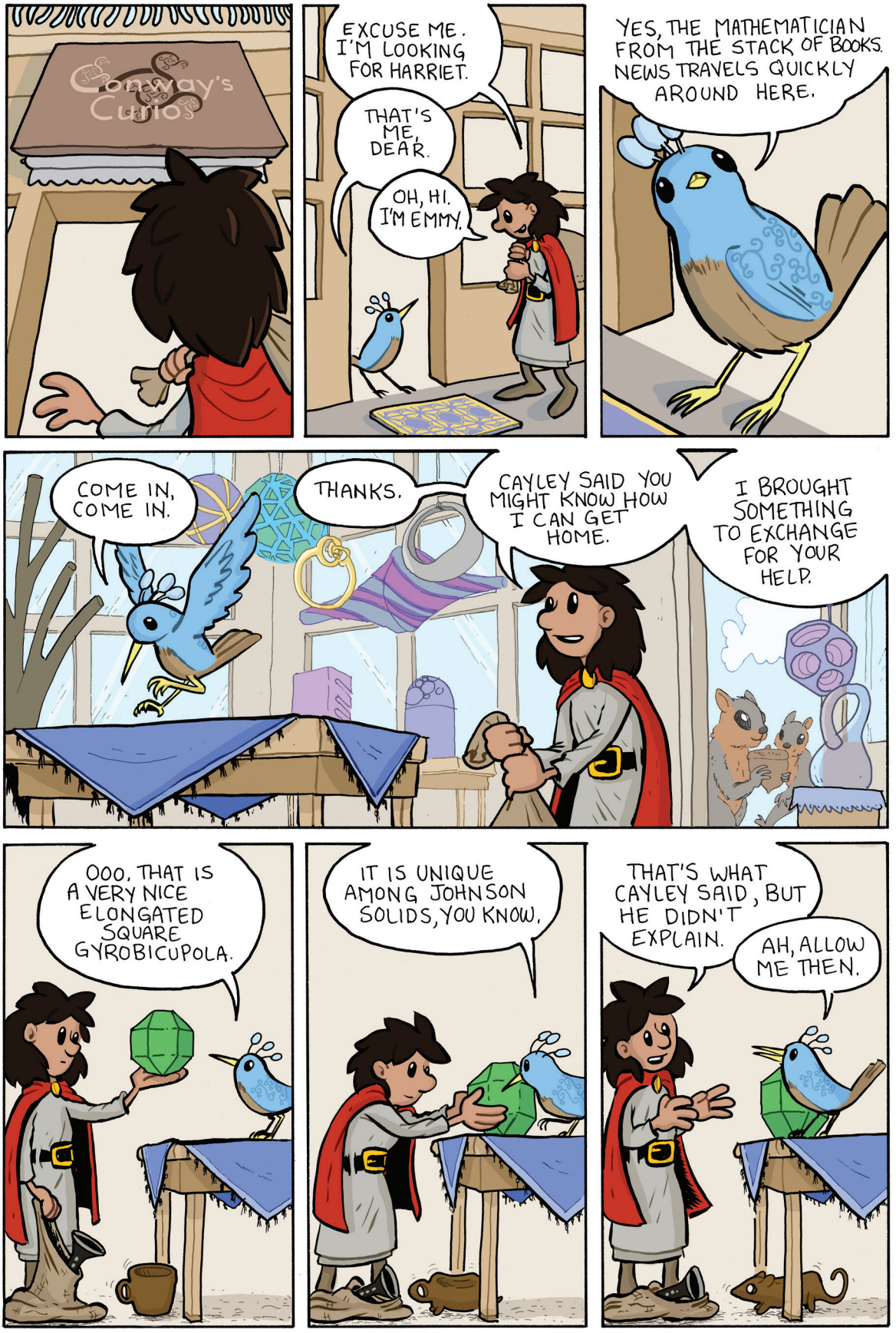

...THAT'S POETIC, BUT NOT VERY SPECIFIC.

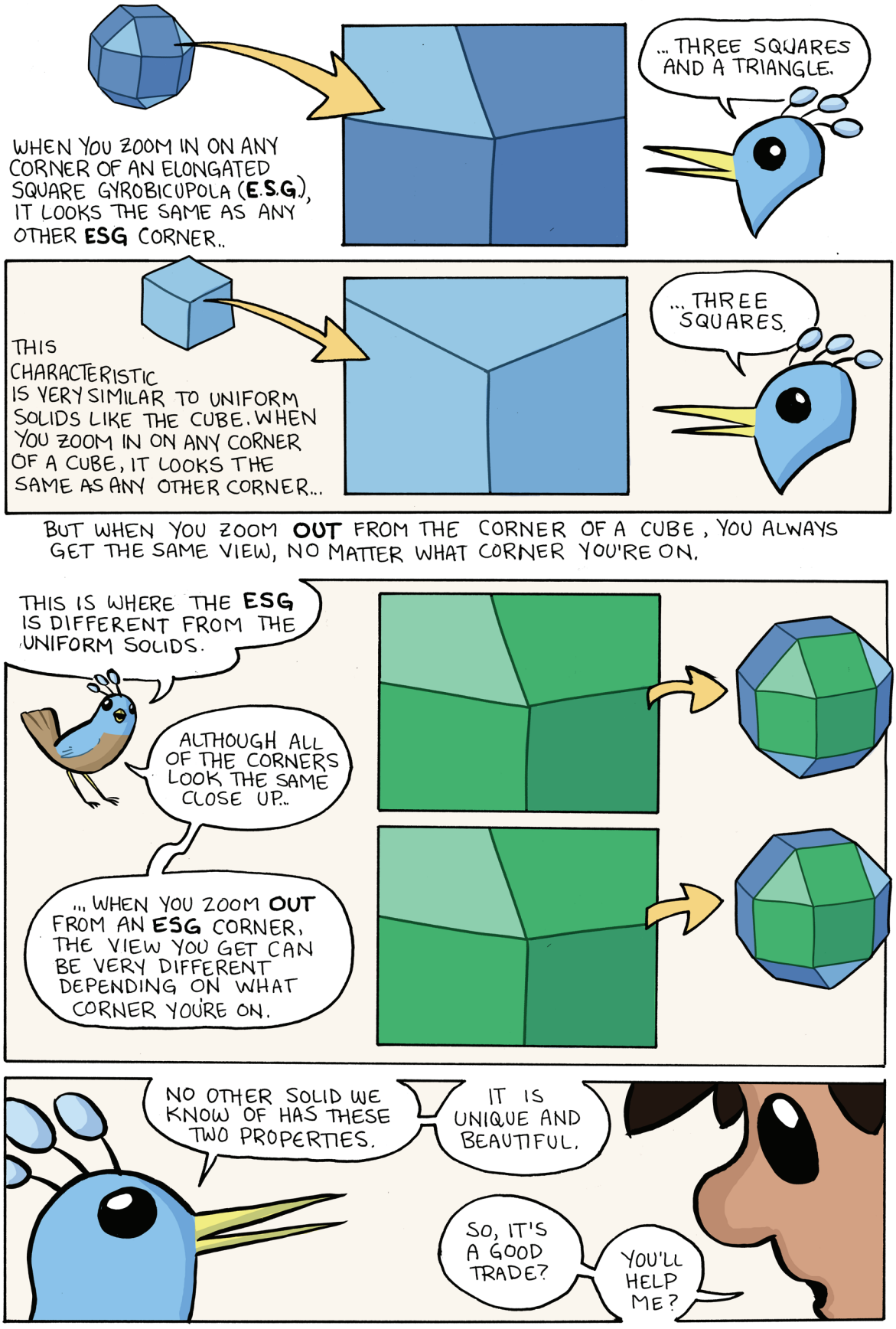

IF PRECISE DIRECTIONS ARE WHAT YOU SEEK YOU SHOULD SPEAK TO BROTHER ZEKE.
AWK!


OKAY, CAN YOU TELL ME THE WAY, ZEKE?

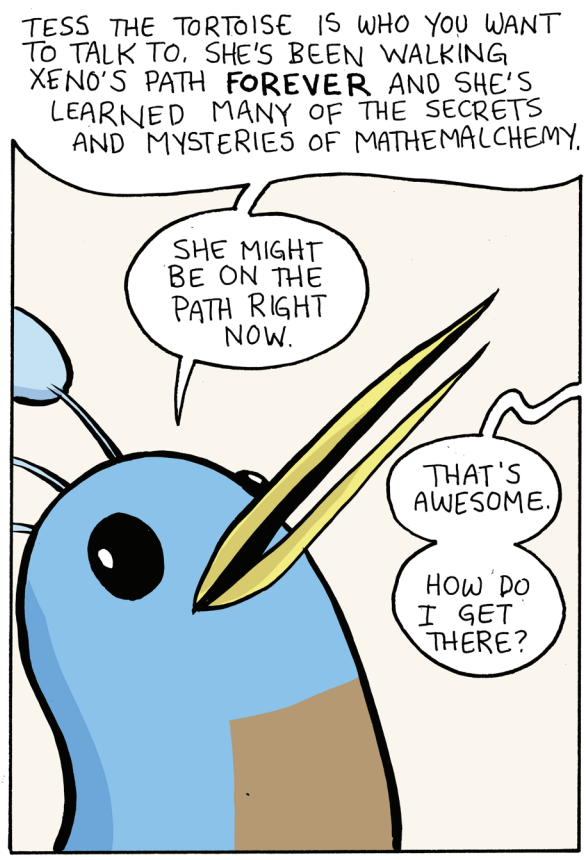

$C(t)=\left[(-1+20t/7)^2+1\right]^{1/2}/\sqrt{2}$
$h:[0,1]\longrightarrow \mathbb{R}^3$
$h(t)=\begin{cases}\langle -C(t)\cos(20\pi t), C(t)\sin(20\pi t), 14-20t\rangle & t\in[0,7/10)\\ \langle -2\cos(10\pi t)-3, -2\sin(10\pi t), 0\rangle & t\in[7/10, 29/40)\\ \langle -3+\sqrt{2}, \sqrt{2}+10(t-29/40), 0\rangle & t\in[29/40, 1]\end{cases}$
OH, WOW.
THAT IS PRECISE.
I KNOW JUST THE PATH TO GET THERE NOW.
THANKS!


OUR WORDS CAN MAKE US POETIC AND CONCISE,
BUT SOMETIMES WE NEED FORMULAE TO BE PRECISE.
HEY, THAT'S CAYLEY'S MOM.
OCTO PI'S MURAL IS FULL OF MATH BUT HIDDEN BEHIND THIS TOWER PATH.
AND JUST LIKE THAT WE'VE REACHED THE GROUND. HAVE A GOOD TIME LOOKING AROUND.
THANKS, PUFFINS!
OKAY, ACCORDING TO ZEKE'S EQUATION, I NEED TO TURN RIGHT.


Conway's Curios
EXCUSE ME. I'M LOOKING FOR HARRIET.
THAT'S ME, DEAR.
OH, HI. I'M EMMY.
YES, THE MATHEMATICIAN FROM THE STACK OF BOOKS. NEWS TRAVELS QUICKLY AROUND HERE.
COME IN, COME IN.
THANKS.
CAYLEY SAID YOU MIGHT KNOW HOW I CAN GET HOME.
I BROUGHT SOMETHING TO EXCHANGE FOR YOUR HELP.
OOO, THAT IS A VERY NICE ELONGATED SQUARE GYROBICUPOLA.
IT IS UNIQUE AMONG JOHNSON SOLIDS, YOU KNOW.
THAT'S WHAT CAYLEY SAID, BUT HE DIDN'T EXPLAIN.
AH, ALLOW ME THEN.


WHEN YOU ZOOM IN ON ANY CORNER OF AN ELONGATED SQUARE GYROBICUPOLA (E.S.G.), IT LOOKS THE SAME AS ANY OTHER ESG CORNER..
... THREE SQUARES AND A TRIANGLE.
THIS CHARACTERISTIC IS VERY SIMILAR TO UNIFORM SOLIDS LIKE THE CUBE. WHEN YOU ZOOM IN ON ANY CORNER OF A CUBE, IT LOOKS THE SAME AS ANY OTHER CORNER...
... THREE SQUARES.
BUT WHEN YOU ZOOM OUT FROM THE CORNER OF A CUBE, YOU ALWAYS GET THE SAME VIEW, NO MATTER WHAT CORNER YOU'RE ON.
THIS IS WHERE THE ESG IS DIFFERENT FROM THE UNIFORM SOLIDS.
ALTHOUGH ALL OF THE CORNERS LOOK THE SAME CLOSE UP...
... WHEN YOU ZOOM OUT FROM AN ESG CORNER, THE VIEW YOU GET CAN BE VERY DIFFERENT DEPENDING ON WHAT CORNER YOU'RE ON.
NO OTHER SOLID WE KNOW OF HAS THESE TWO PROPERTIES.
IT IS UNIQUE AND BEAUTIFUL.
SO, IT'S A GOOD TRADE?
YOU'LL HELP ME?


GRACIOUS ME, I WOULD HAVE HELPED YOU WITHOUT ASKING FOR PAYMENT, **BUT** THIS IS A VERY NICE ESG AND I AM MORE THAN HAPPY TO ADD IT TO MY COLLECTION.
IT'S ALL YOURS.


TESS THE TORTOISE IS WHO YOU WANT TO TALK TO. SHE'S BEEN WALKING XENO'S PATH **FOREVER** AND SHE'S LEARNED MANY OF THE SECRETS AND MYSTERIES OF MATHEMALCHEMY.
SHE MIGHT BE ON THE PATH RIGHT NOW.
THAT'S AWESOME.
HOW DO I GET THERE?


XENO'S PATH RUNS RIGHT PAST THE STORE. YOU CAN'T MISS HER. SHE'S THE ONLY TORTOISE ON THE ISLAND.
THANK YOU SO MUCH, I... uh...
WHAT'S WRONG?


THE BAG WITH MY FLUTE IS GONE.
I PUT IT DOWN ON THE FLOOR RIGHT BESIDE A CUP.
uh...oh.


WAS IT A BROWN, CLAY CUP?
YEAH.
OH, DEAR.


I SUSPECT PROTEUS THE MOUSE HAS YOUR FLUTE.
THERE WAS A MOUSE IN THAT CUP?


NO, THE MOUSE **WAS** THE CUP. PROTEUS IS A SHAPE-SHIFTER AND, FRANKLY, A BIT NAUGHTY SOMETIMES.

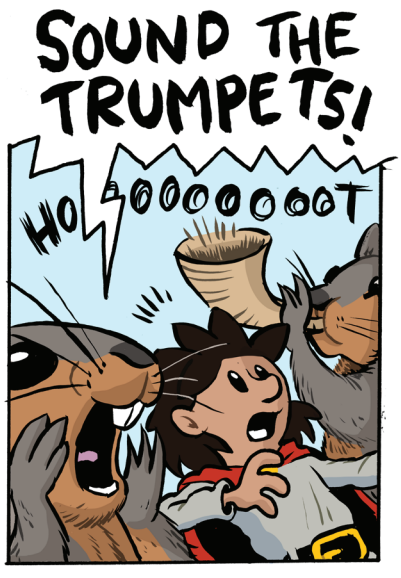

TOOT!
THAT'S IT!


YOU BETTER HURRY. HE'S QUICK!


gasp!

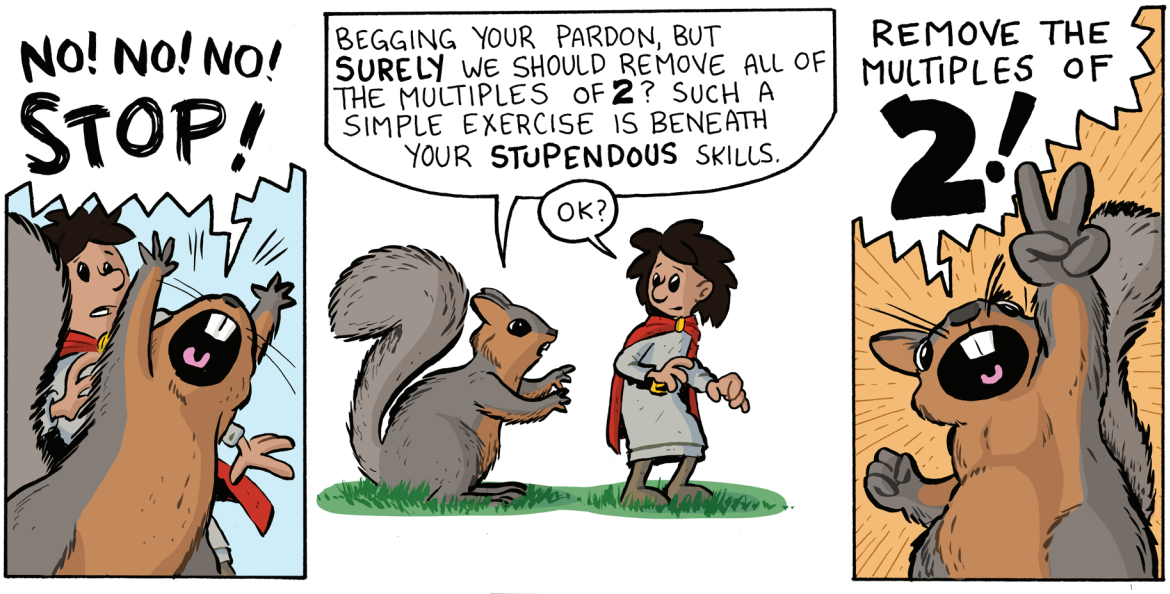

EXCUSE ME.
HEY!


EXCUSE ME.
IT'S THE MATHEMATICIAN!


SOUND THE TRUMPETS!
HO OOOOOOOOT


BOW! BOW BEFORE THE MIGHTY MATHEMATICIAN!
HUH?
NO, DON'T...
WE ARE HONORED THAT YOU HAVE JOINED OUR HUMBLE FESTIVITIES, OH QUEEN OF QUOTIENTS!
I'M NOT REALLY...
LET THE SIEVING OF THE PRIMES BEGIN!
THE WHAT NOW?

YOU MAY START WHEN READY, SUPREME SOLVER OF SUMS.
YEAH, I **COULD, BUT...**
...MAYBE **YOU** SHOULD EXPLAIN THIS TO EVERYONE. JUST FOR THE...uh... **NEW** SQUIRRELS.
EXCELLENT IDEA, OH TITAN OF TEACHING.
TODAY, AS IS OUR TRADITION, WE SHALL FIND ALL OF THE **PRIME NUMBERS** BETWEEN **1** AND **100**
I'M NOT STALLING FOR TIME OR ANYTHING, **BUT...**
MAYBE YOU SHOULD TAKE A MINUTE TO EXPLAIN PRIME NUMBERS, TOO
OF COURSE!
A PRIME NUMBER IS A WHOLE NUMBER GREATER THAN **1** WHOSE **ONLY** FACTOR ARE **1** AND ITSELF!
NOW WE ARE READY TO BEGIN.
right.
WAIT! WAIT! WAIT!
ELIMINATE THE **1** FOR HER. AN EXALTED MATHEMATICIAN CAN'T BE BOTHERED WITH ELIMINATING **1**.
oh thanks.
NOW YOU MAY BEGIN, MOST HALLOWED CYPHER OF SUMS.
great.



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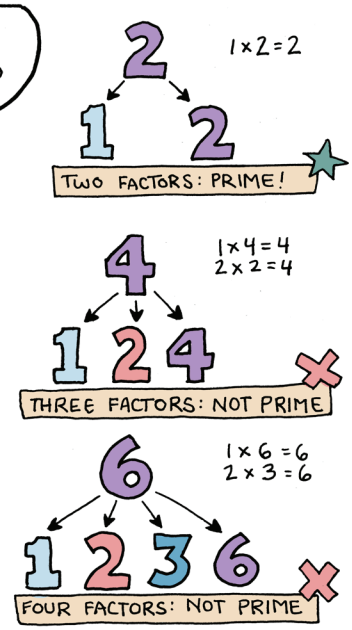

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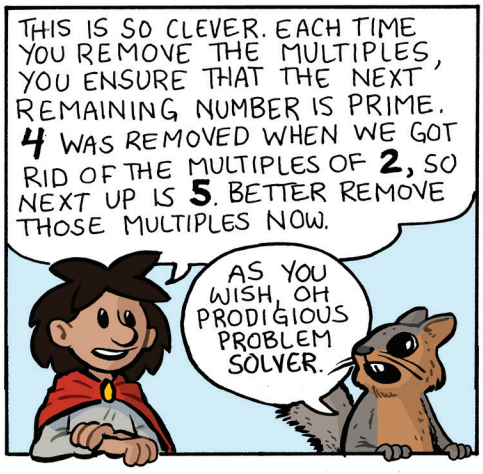

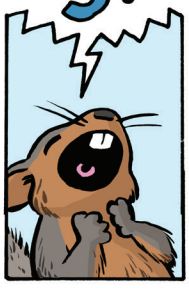

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		83						89
91						97		


I GOTTA GO. YOU'RE IN CHARGE.
ME? I CAN'T..


YOU ALREADY HAVE.
YOU'RE A NATURAL MATHEMATICIAN
BUT...


GOOD LUCK.

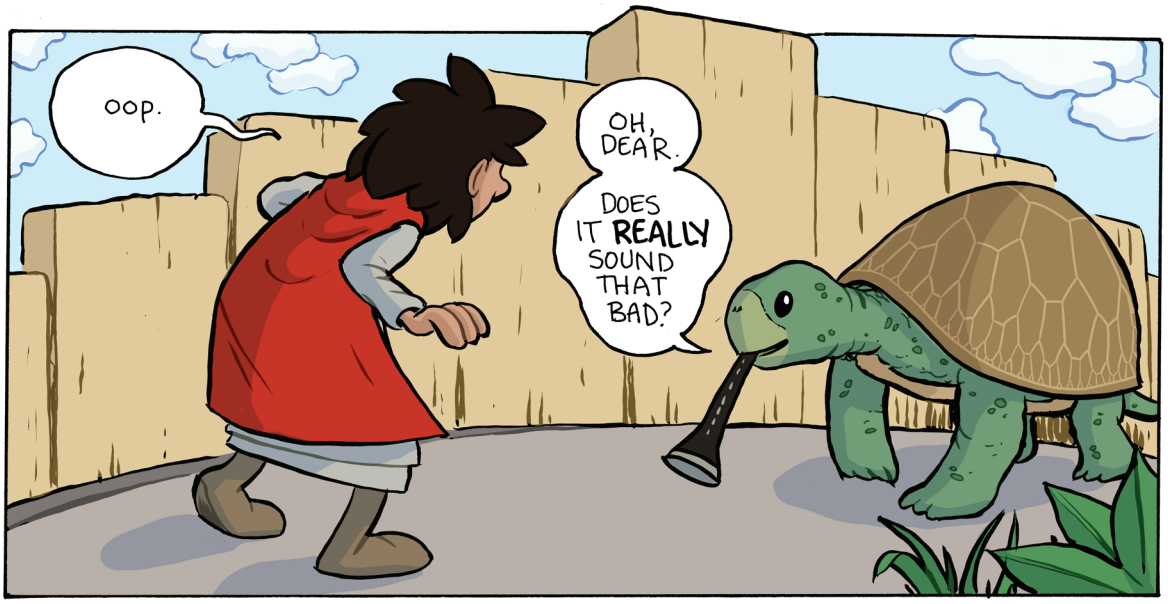

I'M A MATHEMATICIAN.


EXCUSE ME!
COMIN' THROUGH!


TOOOOOT
I HEAR YOU, PROTEUS.
INTEGRAL HILL

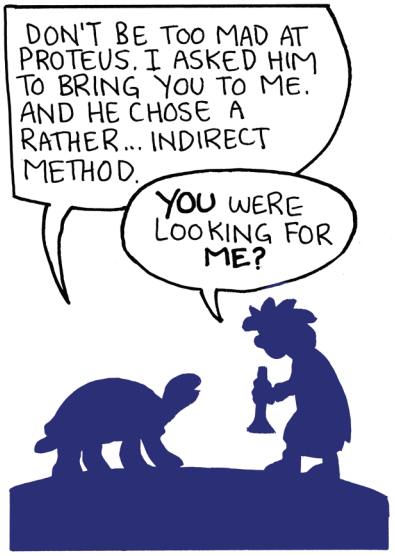

WHOA.


THERE'S SO MUCH MORE TO EXPLORE
TOOOOT
I HEAR YOU, YOU RAT!
TOOOOT
WILL YOU STOP PLAYING?
IT SOUNDS HORRIBLE!
PLEASE. SHUT.

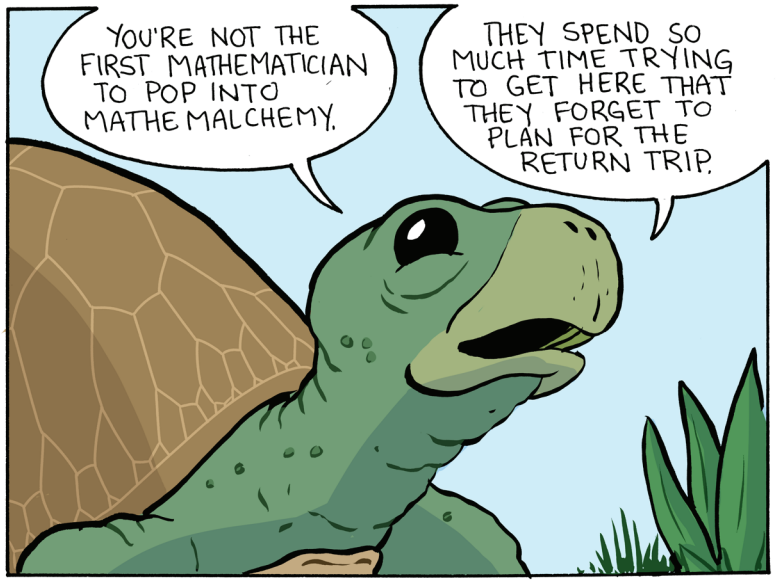

oop.
OH, DEAR.
DOES IT **REALLY** SOUND THAT BAD?

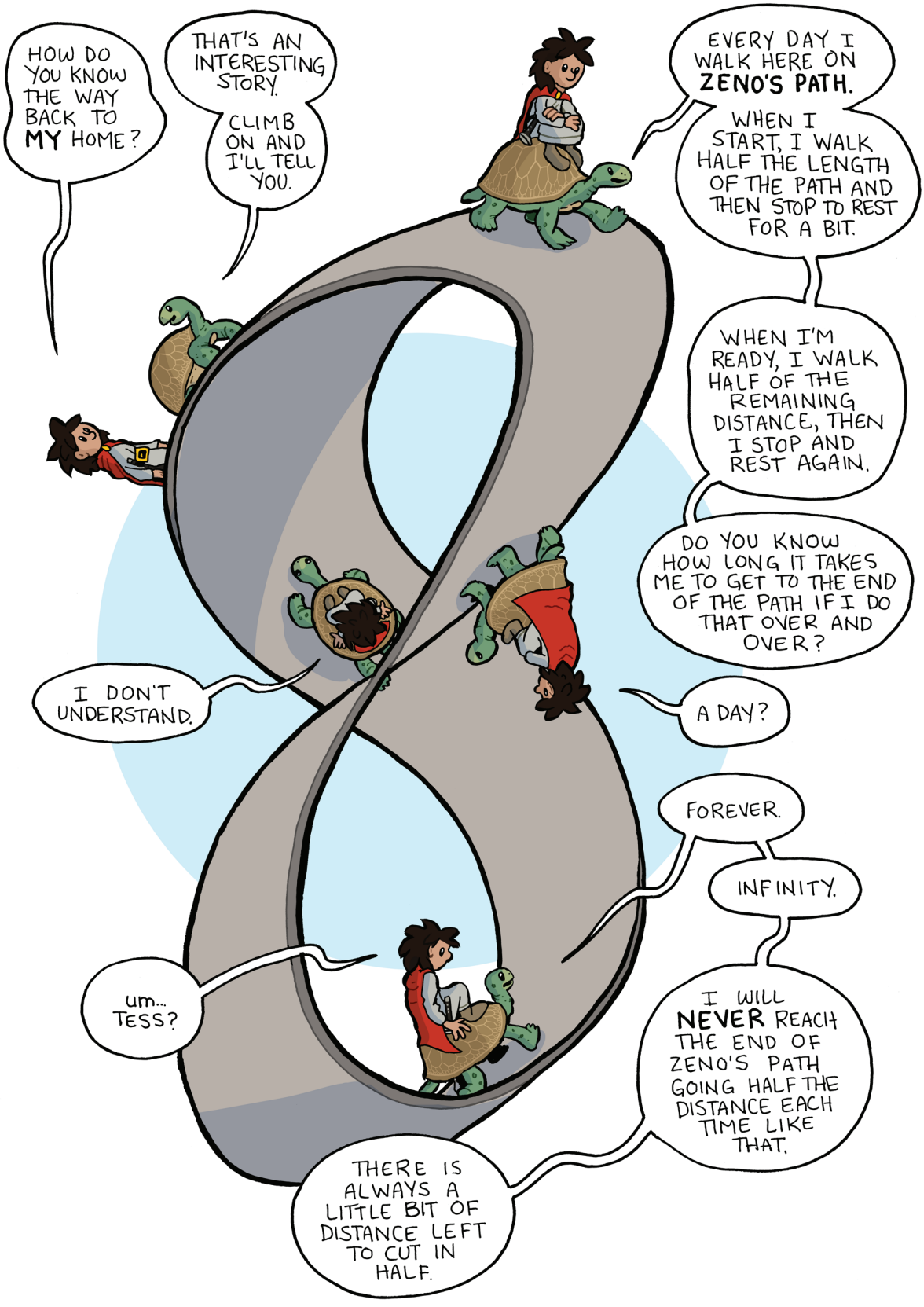

um... THAT'S MY FLUTE, MA'AM.
YES, IT IS.


ARE YOU TESS?
THE ONLY TORTOISE ON THE ISLAND.


DON'T BE TOO MAD AT PROTEUS. I ASKED HIM TO BRING YOU TO ME. AND HE CHOSE A RATHER... INDIRECT METHOD.
YOU WERE LOOKING FOR **ME?**


I ASSUMED YOU WOULD LIKE TO KNOW THE WAY HOME.
HOW DID YOU KNOW THAT?


YOU'RE NOT THE FIRST MATHEMATICIAN TO POP INTO MATHEMALCHEMY.
THEY SPEND SO MUCH TIME TRYING TO GET HERE THAT THEY FORGET TO PLAN FOR THE RETURN TRIP.


HOW DO YOU KNOW THE WAY BACK TO MY HOME?
THAT'S AN INTERESTING STORY.
CLIMB ON AND I'LL TELL YOU.
EVERY DAY I WALK HERE ON ZENO'S PATH.
WHEN I START, I WALK HALF THE LENGTH OF THE PATH AND THEN STOP TO REST FOR A BIT.
WHEN I'M READY, I WALK HALF OF THE REMAINING DISTANCE, THEN I STOP AND REST AGAIN.
DO YOU KNOW HOW LONG IT TAKES ME TO GET TO THE END OF THE PATH IF I DO THAT OVER AND OVER?
I DON'T UNDERSTAND.
A DAY?
FOREVER.
INFINITY.
um... TESS?
I WILL NEVER REACH THE END OF ZENO'S PATH GOING HALF THE DISTANCE EACH TIME LIKE THAT.
THERE IS ALWAYS A LITTLE BIT OF DISTANCE LEFT TO CUT IN HALF.


HOW CAN YOU WALK "INFINITY" EVERY DAY?
WELL, I NEVER ACTUALLY MAKE IT TO THE END OF THE PATH, DO I?
WHEN IT'S TIME FOR TEA I TURN AROUND AND WALK HOME LIKE NORMAL.
BUT THE THING IS, EACH TIME I WALK THE PATH, I MEDITATE AND BRUSH UP AGAINST THE INFINITE.
I IMAGINE THE POSSIBILITIES.
WHEN I THINK ABOUT THE UNCOUNTABLE WORLDS AND DIMENSIONS FULL OF MATHEMATICIANS PLUCKING AWAY AT THE FABRIC OF REALITY, IT IS HARDLY A SURPRISE WHEN A FEW OF THEM ARE SUCCESSFUL AND BREAK THROUGH.
THEIR ARRIVAL HERE, LIKE YOURS, WAS INEVITABLE.
SO, I NEEDED TO BE READY. I HAVE THOUGHT AND STUDIED AND PLANNED AS I WALKED ZENO'S PATH.


SO, WHAT'S THE SECRET?
WHAT DO I NEED TO DO?
IMAGINE.
IMAGINE THE WALLS WE BUILD BETWEEN MATH AND ART. BETWEEN SCIENCE AND STORY.
NOW IMAGINE THOSE WALLS CRUMBLING.
THOSE ARE THE BARRIERS THAT HOLD YOU BACK.
WHEN THEY FALL IN YOUR MIND'S EYE, YOU WILL BE ABLE TO MOVE FREELY BETWEEN YOUR HOME AND MATHEMALCHEMY.
THANKS, TESS. CAN I COME BACK AND EXPLORE SOME MORE WITH MY MOM?
OF COURSE. INFINITY ALWAYS HAS ROOM FOR ONE MORE.
OKAY, THEN.
IMAGINE.
POP
!
ATTENTION!
ATTENTION EVERYONE!
WE NEED TO GET READY!


VISITORS ARE ON THEIR WAY.

Mathemalchemy

You've read the story, now visit the exhibit!

Explore the world of Mathemalchemy from anywhere in the world by visiting **mathemalchemy.org**. Read about how the exhibit was created, explore the mathematical concepts woven into the art, or read a little more about your favorite characters. Use the QR code above to get started now!

About the Cartoonists

Jay Hosler is a professor of biology at Juniata College. He is also a cartoonist who has written and drawn several comics and graphic novels about science. You can learn more about his books and read tons of science comics at jayhosler.com. He's also on Instagram at @hoslerjay

Maxwell Hosler has a degree in Mathematics from the College of Wooster. He has spent his life trying to explain math to his father. This comic is evidence that some of that work has paid off.

Thanks, Juniata!

We are profoundly grateful to the Juniata College Department of Biology, Department of Mathematics, and the Office of the Provost for providing the financial support required to print this comic. Juniata is a super cool place to work and an even better place to get a degree. Stop by for a visit if you're ever in the area or visit our website to learn more. **www.juniata.edu**.

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