



**THE 2023 YOUNG MATHEMATICAL STORY AUTHOR (YMSA) COMPETITION**

**THE CINDY NEUSCHWANDER AWARD  
(THE 12-15 YEARS OLD CATEGORY)**

**LOGLISTED**

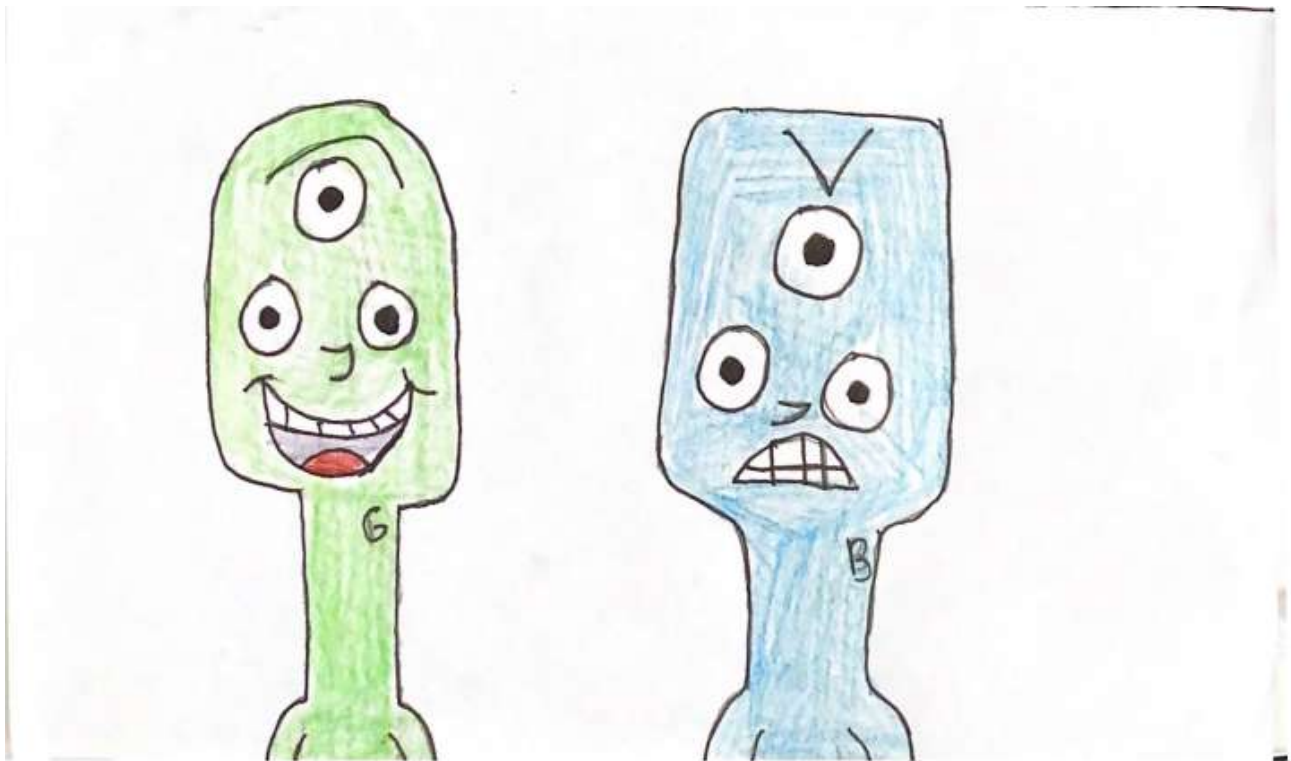
'Goyu's & Boyu's Intergalactic Adventure'  
by Swanish Baweja (13 years old)  
at Glen Cairn Public School (Canada)

You can read the author's inspiration for the story and the judges' comments  
on:

[www.mathsthroughstories.org/ymsa2023](http://www.mathsthroughstories.org/ymsa2023)

**#YMSAMaths**

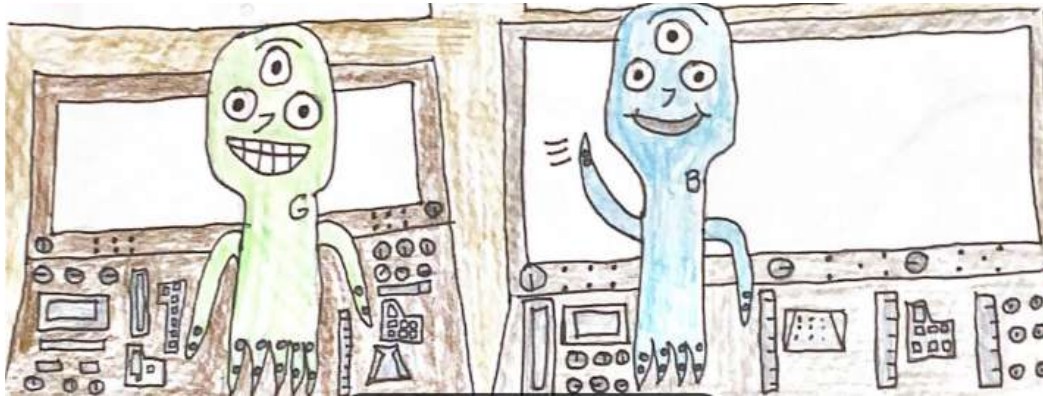
# Goyu's & Boyu's Intergalactic Adventure



By: Swanish Baweja  
Glen Cairn Public School

In an extraordinary universe, far away from ours, with nothing to be seen but space junk and stardust, were two dwarfed aliens in an enormous spaceship, the Brilliant Boyu and the Great Goyu.

The Brilliant Boyu, who is a serious person, takes everything literally and then we have the Great Goyu, who is the complete opposite of his brother. He is always hysterical and doesn't take work seriously. He thinks of everything as a joke.

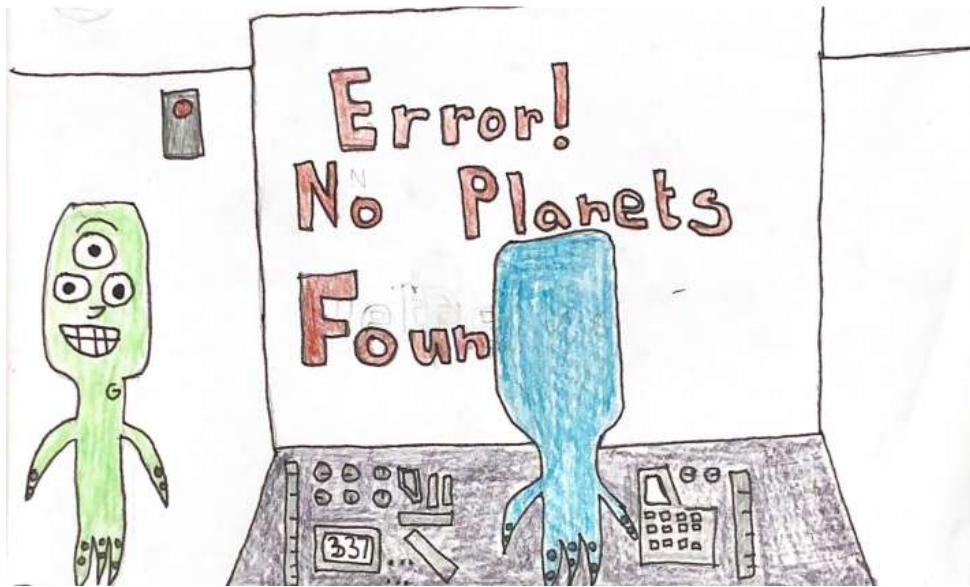


Their leader, Madam Meeyu sent them on a mission to find a replacement for their home planet, Goota, since they were the most capable aliens for doing this job.

Their breathtaking planet, Goota, is very close to being inhabitable since the inhabitants constantly pollute the atmosphere with lethal gasses from their gas-powered flying vehicles, but nobody seems to care enough to stop using those vehicles. With every passing day, the planet becomes more and more inhabitable, so they need to get their inhabitants out immediately. However, they haven't succeeded so far in their search for a new planet.



The Brilliant Boyu and the Great Goyu have been searching for a new planet for days. They had a scanner that showed them all the planets in the galaxy they were in, but the scanner wasn't picking up any signal of an habitable planet, yet. They needed to find one fast, or their species would be wiped out completely. They only had two days left until their entire species would be extinct.

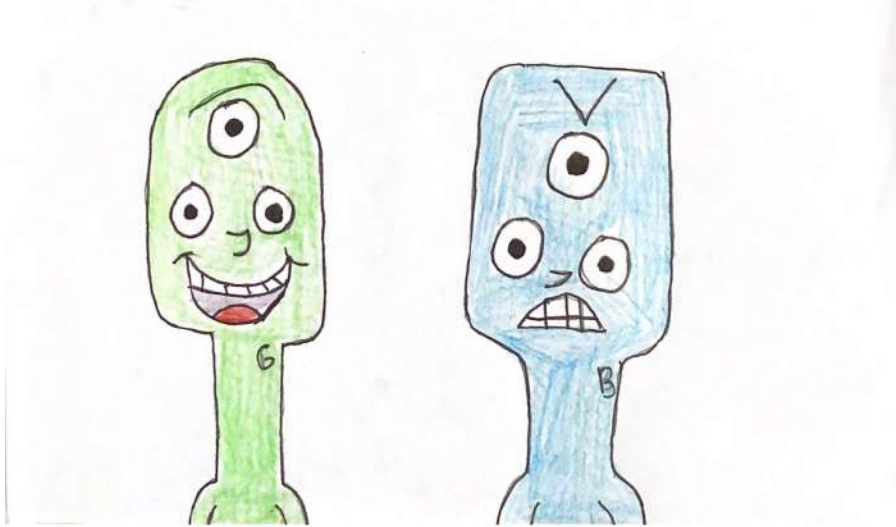


"I don't know how much longer we can do this. We've been out here for days and haven't found anything." Boyu exclaimed.

Boyu was defeated, he was almost giving up. He had never given up in his entire life, and his brother, Goyu, had never seen him like this. Boyu had a limp body and was dragging his tentacles.

"It's okay, Boyu, don't worry," Goyu replied to his body language. "Wait!! Turn around. I think it picked up a planet!"

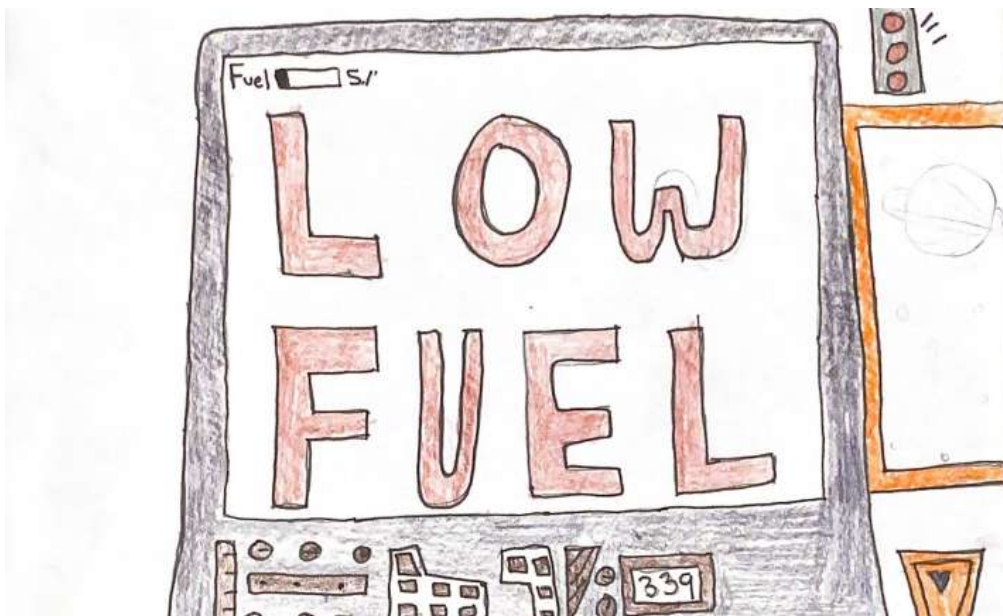
Boyu swiftly turned around and looked at the scanner, hoping it picked up a possible planet. There was nothing. But before he could say anything, Goyu replied, "I made you look." Then started laughing uncontrollably. Boyu was at a loss for words. He never thought his brother would do something like this at a crucial time.



A couple of hours later, both of them fell asleep peacefully, but that was until an emergency alarm started ringing. Boyu quickly sprinted off his mattress and ran to the control room.

"Low fuel! Low fuel!" The robot voice chimed in.

They were on low fuel mode. Their control room had 16 hours written in bright, bold red text all over their screens. 16 hours until they would lose all fuel and would drift off into who knows where.

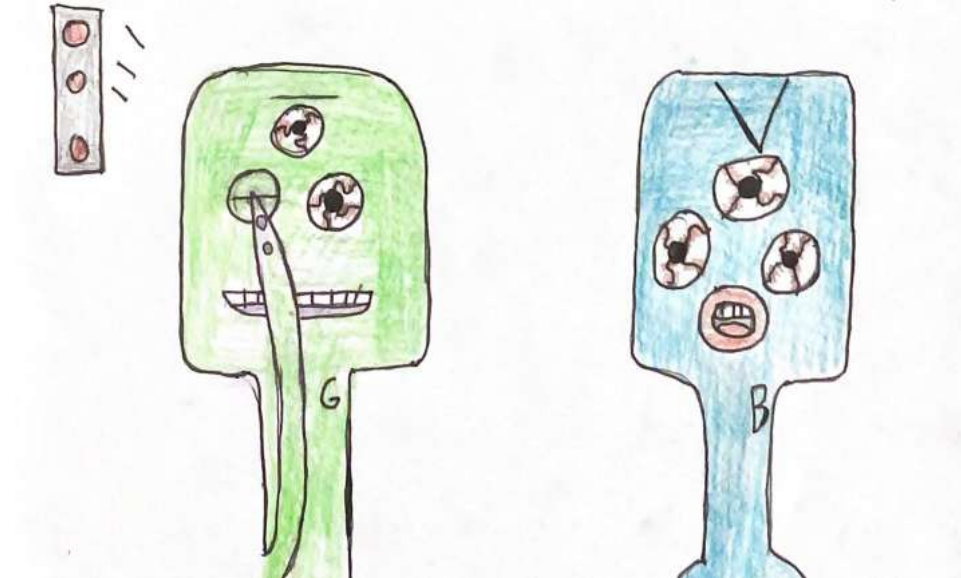


Goyu woke up calmly soon after and walked over to the control room.

"What happened?" Goyu asked tiredly as he rubbed his eye with his tentacle. "Go back to sleep."

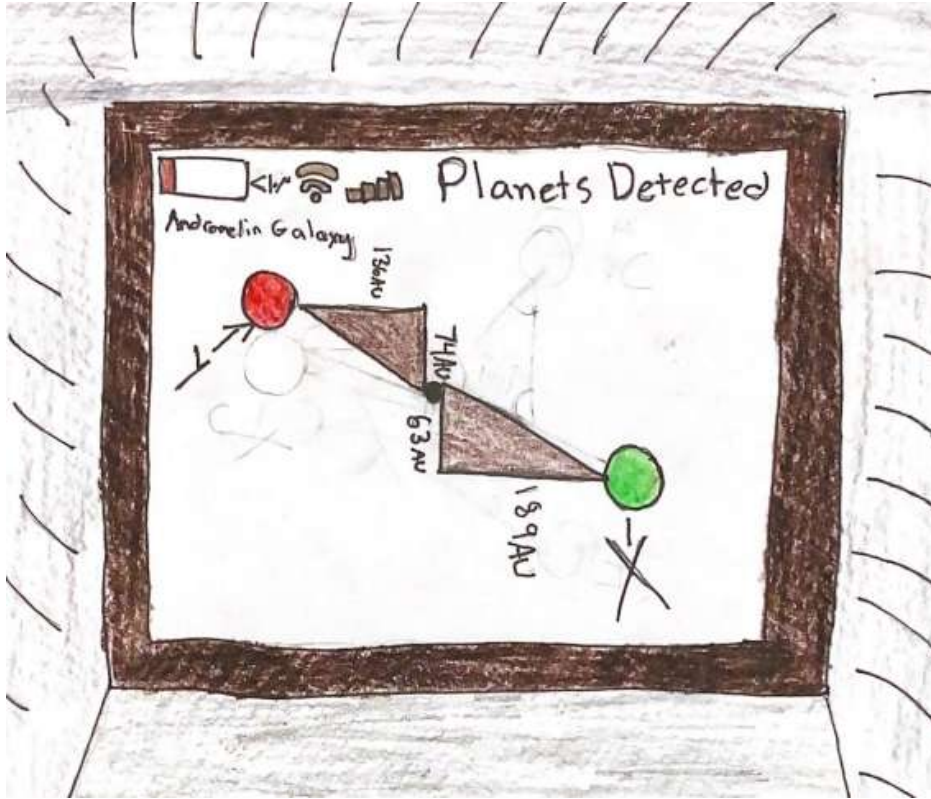
"Are you crazy? Look behind me!" Boyu yelled, making the room shake. Boyu instantly turned red and started breathing heavily.

Goyu glanced over at the screen and didn't panic at all. He said, "We will deal with this in the morning," and went back to his room to sleep. Boyu was on his own to figure out what to do next.



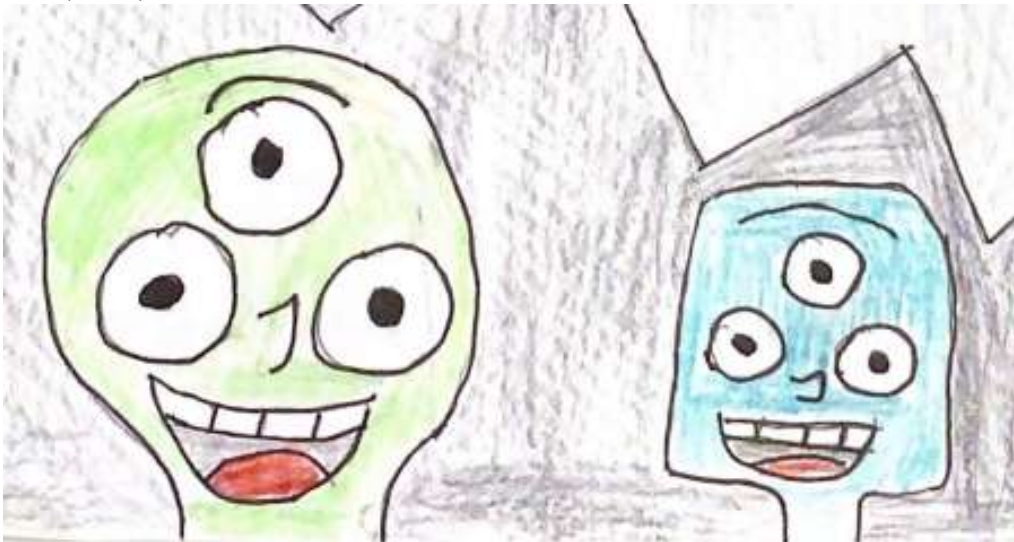
Before Boyu did anything, he ensured the spacecraft was in low-fuel mode. Boyu sat down and cranked up the speed for a bit. They were passing through galaxies at high rates, to no avail. Nothing was showing up on the scanner. But, just as they entered a new galaxy, and just as Boyu was about to give up, two habitable planets suddenly appeared on the scanner, with some directions.

Boyu quickly slowed the speed down and called for Goyu.



"Are you serious?" He replied in a disinterested sort of voice. But still came running into the control room.

"No way!" Goyu exclaimed in excitement.



Except they had a problem on their hands. They only had a couple hundred astronomical units left until the fuel would completely run out. The scanner had only found one way to get to each planet, way was too long and inefficient. So, they would have to use the distances they had to solve for the most efficient way to get to each planet, and then choose the planet closest to them.

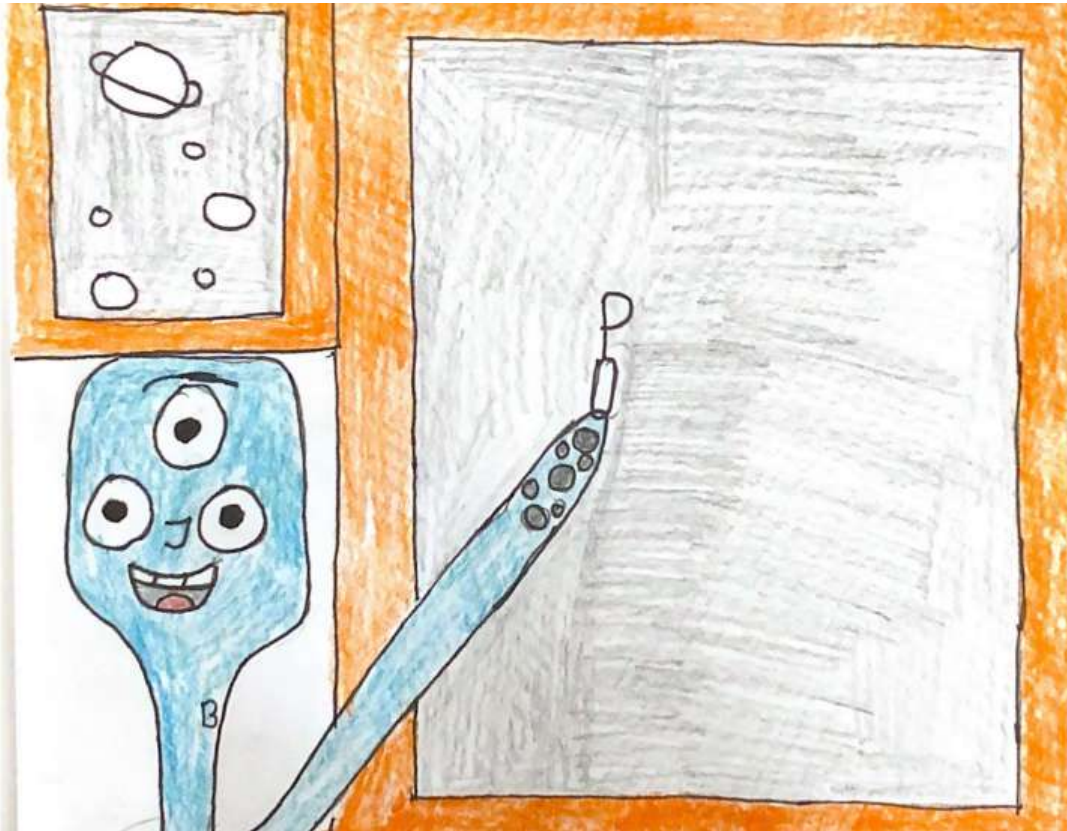
The brothers rushed into the calculations room to try and solve the distances. Boyu went to the board as Goyu went to sit down on one of the chairs.

"What math concept should we use to solve this?" Goyu queried.

"We can use the Pythagorean Theorem." Boyu replied, "I did this in training for the mission."

"Nice! But I know nothing about that topic... Can you teach me?" Goyu asked nervously.

"Sure, Goyu! I'd be glad to help!" Boyu replied.



Boyu went to an old box in the corner of the room and started aggressively rummaging through it. He eventually pulled out a dusty dark brown notebook that looked like it was hundreds of years old. Then, he started flipping through the pages.

"Finally." Boyu exclaimed in a weird tone. "Here. Read this."

Boyu turned his book the other way for Goyu to see. There was a crusty old page that explained the Pythagorean Theorem and how to use it.



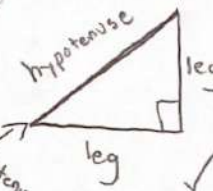
Name: Goyu  
Notes by Boyu  
Grade 8

(15/15)

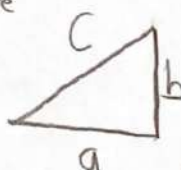
# PYTHAGOREAN THEOREM

Used for?

The theorem is used to find the 3rd side in a triangle, whenever you have the other two sides.



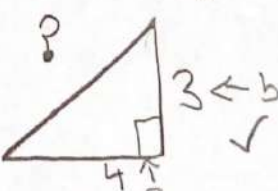
hypotenuse is the side opposite to right angle



Formula:

$$a^2 + b^2 = c^2$$

PRACTICE



NOTES:

- This theorem only works in right-angled triangles.
- C is always the hypotenuse.
- The hypotenuse is the longest side.

$$4^2 + 3^2 = c^2$$

$$16 + 9 = c^2$$

$$25 = c^2$$

$$\sqrt{25} = c$$

$$5 = c$$

"The page looks as dead as you." Goyu murmured.

"What was that?" Boyu asked.

"Nothing..." Goyu mumbled to himself.

"Now, there are some things I would like to mention some things that aren't on the sheet." Boyu explained.

"Wait, I have a question about the page." Goyu asked. Boyu was surprised that he was even paying attention. Goyu had a shorter attention span than a goldfish. "Does  $a^2$  mean  $ax^2$ ?"

"No, Goyu, the  $a^2$  means  $axa$ , not  $ax^2$ ." Boyu answered in a surprised voice. It was like he couldn't believe that his brother asked that. "Now, before we start solving, I want to make some things

clear. The hypotenuse,  $c$ , is the longest side in a triangle and that this formula only works on right-angled triangles. Alright?"

"Mhm." Goyu hummed as he was spinning in his chair.

Boyu quickly pulled up the picture of the problems from the scanner on the big board.

"Okay, so, ready to solve? You'll have to do the next one." Boyu asked to make sure Goyu was indeed ready but didn't wait for a response. "For Planet X, we only have the route of the inefficient way. The lengths of the legs of the triangle are 189 astronomical units and 63 astronomical units, respectively. If we substitute them into the formula, we get  $189^2 + 63^2 = c^2$ ."

As Boyu was about to pull out his calculator, Goyu blurted out "189 x 189 is 35,721." Boyu looked at him in amazement. His eyes grew larger as he realized that Goyu was right.

"Goyu, what's 63 x 63?" Boyu asked in amazement as his voice trembled.

Goyu paused for a second then said 3,969 in a very soothing voice, as if he did this type of mental math everyday.

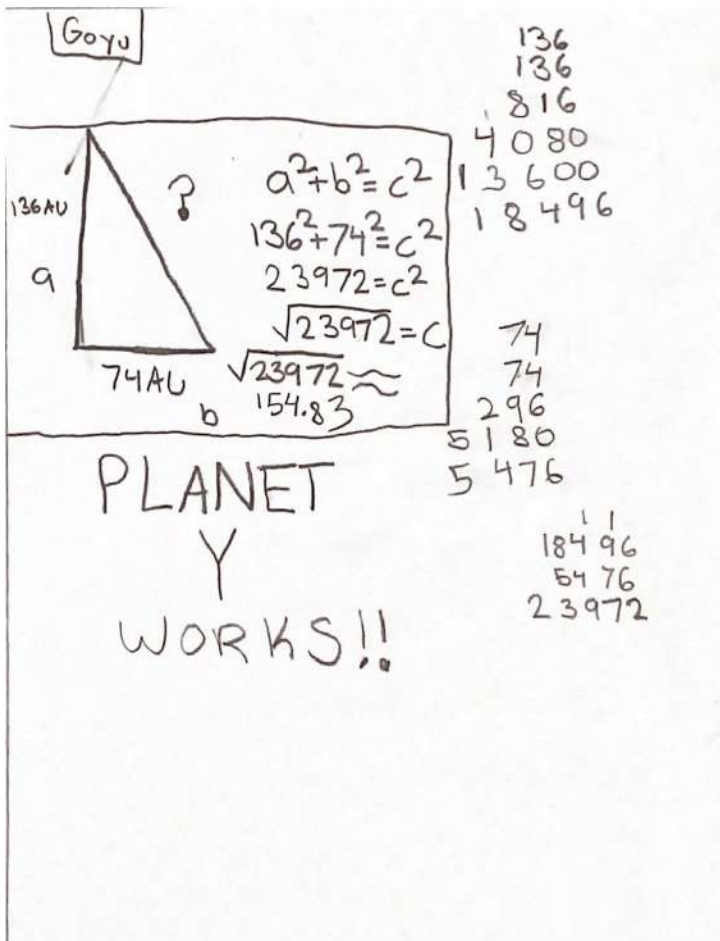
"Now, we have to add this together, and we get 39,690." Boyu explained. " $39,690 = c^2$ . Lastly, we have to root both sides. So, we get  $\sqrt{39,690} = c$  Which would be—"

"199.2." Goyu interrupted.

Boyu once again looked at him in amazement. He looked proud of his brother for the first time in a long time.

Boyu quickly ran to the control room to see how many astronomical units they had left. When he got there, the screen said 190 astronomical units. There is no way they could go to Planet X with the amount of fuel they had left. Boyu, disappointed, went back to let his brother solve for the next planet.

When he got back, his brother had already solved it on a piece of paper.



His work was tremendous. Boyu scanned the paper over and over for mistakes. He looked at the answer, 154.83 astronomical units. It would work! Planet Y was going to be their forever home (hopefully).

Both brothers rushed into the control room and turned on the directions to Planet Y.

"WE DID IT!" Goyu yelled happily.

"YES! WE DID IT!" Boyu yelled back. For the first time in a long time, he was happy. They were ecstatic after their success.

So, after hours of hard work and dedication, they landed on the planet successfully. They got out and surveyed the land. But, just then, a slight issue came up. The planet was already inhabited by a weird species called mole rats.

"Look at that one. It looks like you!" Goyu pointed at a mole rat and related it to Boyu.

"What did I ever do to you.." Boyu replied, chuckling.

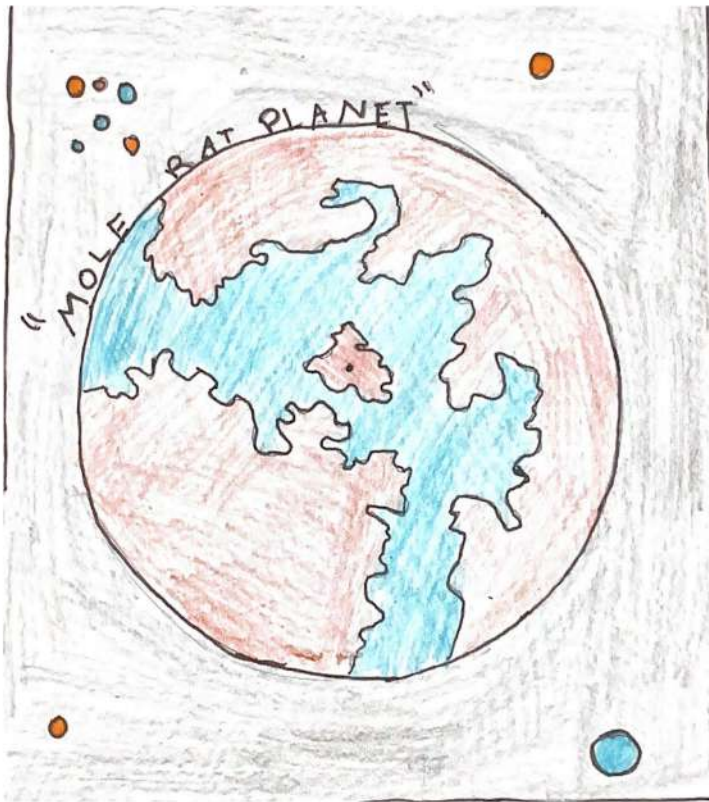
After checking the planet and verifying that their species could live harmoniously with the mole rats, they radioed their leader. A couple minutes had passed, and after they finished radioing, another problem came up. They were stuck on this planet until the rest of their species came over.

"I guess the mole rats will be our family now." Goyu laughed nervously.

The brothers had become heroes. When their leader finally came, they got promoted. Life was looking set for them. Their leader even let them name the planet.

"Uhh. I think we should name it-" Boyu said as he thought of a good name.

"MOLE RAT PLANET!" Goyu giggled as he interrupted his brother but stopped after seeing the look on Boyu's face.



And so, the species enjoyed the so-called "Mole Rat Planet" for the remainder of the time. It was their forever home, or was it?

## **BLURB**

Two well respected brothers, Boyu and Goyu have been sent on an important mission to save their planet. Their leader embarks them on a mission to find another habitable planet. One brother is serious and one brother is a joker. Will they be able to succeed in this mission, or will they fail horribly?

## **About the author**

I am a 13 year old boy who goes to Glen Cairn Public School in Canada. The inspiration I got to make this mathematical story comes from my love for math and space. I am fond of space because it is something we know little about.