St. Jude MATH-A-THON

St. Jude patient
Misheel

LEVEL 6
FUNBOOK

St. Jude Children's Research Hospital®

St. Jude
Math-A-Thon

Welcome to the St. Jude Math-A-Thon!

Thank you for supporting St. Jude Children's Research Hospital®. Because of fundraising programs like St. Jude Math-A-Thon and supporters like you, St. Jude is leading the way the world understands, treats and defeats childhood cancer and other life-threatening diseases. You're an important part of making this fundraiser a success and participation is easy:

1. Raise money online using the tools available at **stjude.org/math**
2. Complete the math worksheets in this workbook
3. Earn cool prizes!

Meet Misheel

Misheel walked down the stairs of St. Jude sporting a bright smile as she carried a bag bursting with colorful balloon figures that she created to distribute to other patients, doctors and nurses. Despite her own battle with brain cancer, Misheel has refused to let her illness keep her from spreading joy to others.

Misheel was diagnosed with mixed germ cell brain tumor/cancer in July 2023 after experiencing several months of insatiable thirst and repeated visits to the bathroom, her mother said. A doctor's visit and tests revealed tumors in her brain. Misheel was referred to St. Jude, where she has received treatment, which included chemotherapy and radiation therapy. "St. Jude means a lot to us, it has become a loving family," said her mother, Undrakh.

Since she became a patient of St. Jude, Misheel not only learned to master balloon twisting, but she is also learning, with the help of YouTube, to be a ventriloquist. Misheel, though, aspires to be a doctor or a nurse, just like those at St. Jude.

How Math Helps St. Jude

Math is used every day on the St. Jude campus. From careful measurements for patient medicine to the complex mathematics needed in our state-of-the-art research facilities, numbers play an important role in helping our patients. As you complete each worksheet, know that you're sharpening important skills that are used every day to help the kids of St. Jude.

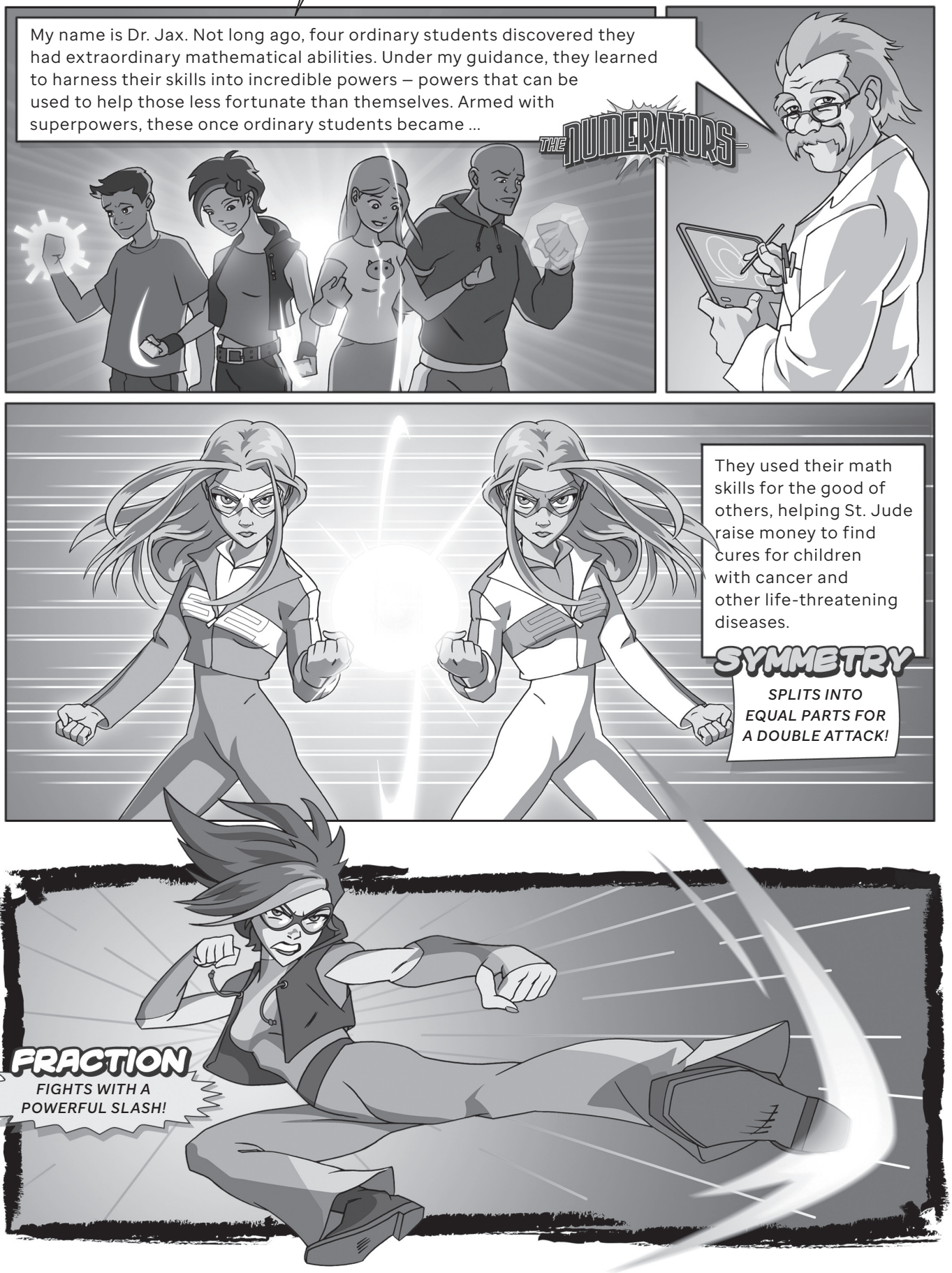
- The St. Jude campus is always expanding to further our scientific research and create more cures. Math plays an important role in our fundraising efforts.
- Did you know treatment can cost on average $450,000 for a family to fight childhood cancer? Your Math-A-Thon fundraising efforts transform that big number into zero! Families never receive a bill from St. Jude for treatment, travel, housing or food – so they can focus on helping their child live.
- Scientists at St. Jude research facilities use math to plan their experiments and figure out how many samples they need. They also use math to look at the data they collect, find patterns and understand how well treatments work. This helps them make sure their results are accurate and useful.

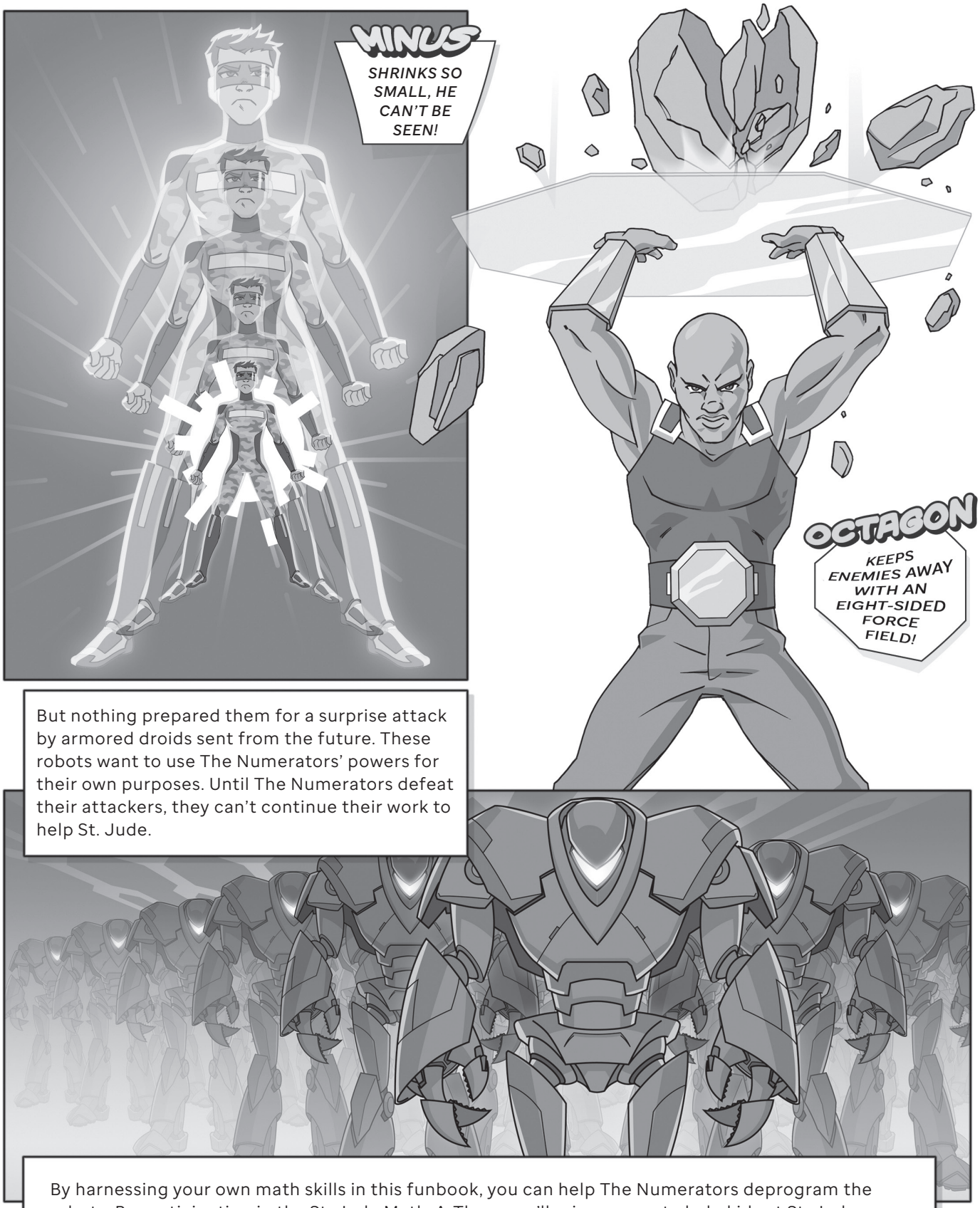
Ready to Sign Up?

St. Jude relies on the power in numbers. Math plays a vital role in nearly every aspect of our campus, but the strength in numbers is never more powerful than when it helps our patients. That's where you come in – turn to the back page of your funbook to start the sign-up process. You can even have your parents scan the QR code and sign up online.

St. Jude patient
Abraham

MEET THE NUMERATORS





But nothing prepared them for a surprise attack by armored droids sent from the future. These robots want to use The Numerators' powers for their own purposes. Until The Numerators defeat their attackers, they can't continue their work to help St. Jude.

By harnessing your own math skills in this funbook, you can help The Numerators deprogram the robots. By participating in the St. Jude Math-A-Thon, you'll raise money to help kids at St. Jude. Just like The Numerators, you can use math to help fund research and find cures for kids. Help The Numerators while helping St. Jude, and begin your own adventure today!

Cosmic Calculations

The Numerators are chasing the droids and have teleported themselves – and several Earth objects – to other planets to test their strength! This chart shows the factor to multiply by an object's weight on Earth to find what its weight would be on each planet. See how strong they are here – and throughout the solar system!

Planet:	Multiply Earth weight by …
Mercury	.38
Venus	.91
Earth's moon	.17
Mars	.38
Jupiter	2.36
Saturn	1.06
Uranus	.89
Neptune	1.13

1. On Mercury, Symmetry lifts a boulder that weighs 500 pounds on Earth. What is its weight on Mercury?

   _____

2. Fraction goes to Saturn and picks up a bathtub that weighs 200 pounds on Earth. How much does it weigh on Saturn?

   _____

3. Octagon brought a barbell with 1,200 pounds of weight on it to the Earth's moon. How much does it weigh there?

   _____

4. On Jupiter, Minus tries to lift a park bench that weighs 74 pounds on Earth. How much does it weigh on Jupiter?

   _____

5. A car's Earth weight: 2,850 pounds. Weight on Venus:

   _____

6. School backpack's Earth weight: 15 pounds. Weight on Uranus:

   _____

7. Refrigerator's Earth weight: 250 pounds. Weight on Mars:

   _____

8. Minus' weight on Earth when he shrinks to his smallest size: .65 pounds. Equivalent weight on Neptune:

   _____

9. Video game system's Earth weight: 3.84 pounds. Weight on Jupiter:

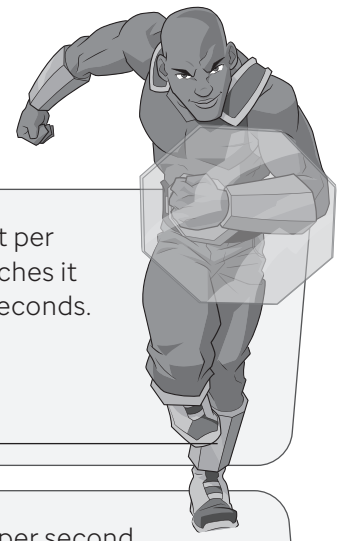
   _____

10. Flat-screen TV's weight on Earth: 136.5 pounds. Weight on Venus:

    _____

High-Speed Chases

The droids are on the run at super speed! Calculate how far, for how long or how fast The Numerators have to go to keep up with each one.



1. One droid moves 75 feet per second (51 mph). Fraction stops him after he runs for 15 seconds. How many feet did the droid run?

_____

2. Another droid moves 49 feet per second (33 mph). Minus catches it after the droid runs for 25 seconds. How far did the droid run?

_____

3. A third droid runs 88 feet per second (60 mph). How far can it run in 39 seconds?

_____

4. A fourth droid runs 96 feet per second (65 mph). How far can it run in 52 seconds?

_____

5. Another droid runs 72 feet per second (49 mph). How many seconds does it take the droid to run 2,664 feet?

_____

6. A sixth droid runs 59 feet per second (40 mph). How long does it take to run 826 feet?

_____

7. A seventh droid runs 91.8 feet per second (63 mph). How long does it take to run 5,783.4 feet?

_____

8. An eighth droid runs 3,483 feet in 43 seconds. How many feet per second is that?

_____

9. A ninth droid runs 4,890.05 feet in 52.3 seconds. How many feet per second is that?

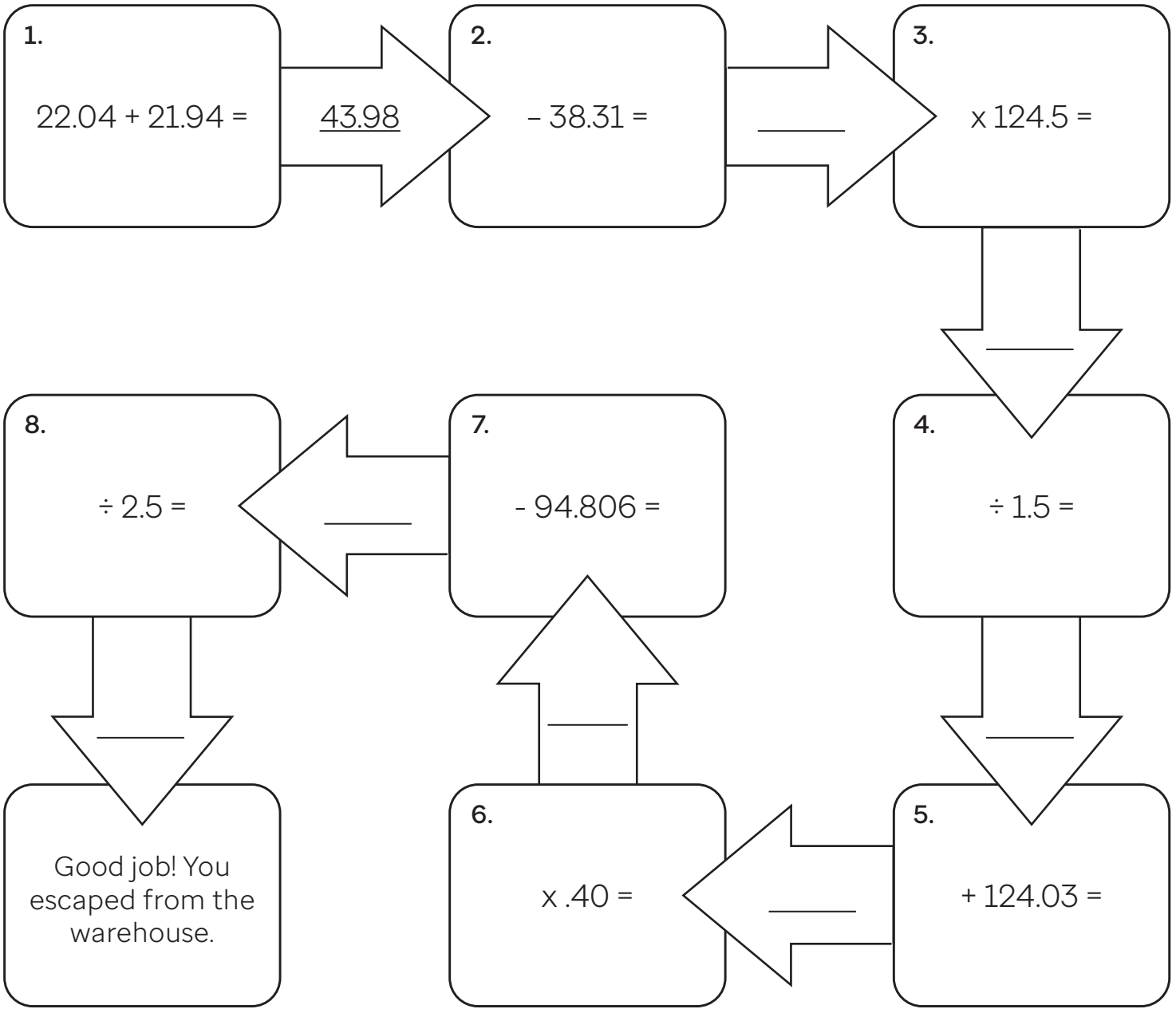
_____

10. The final droid runs 2,464 feet in 22.4 seconds. How many feet per second is that?

_____

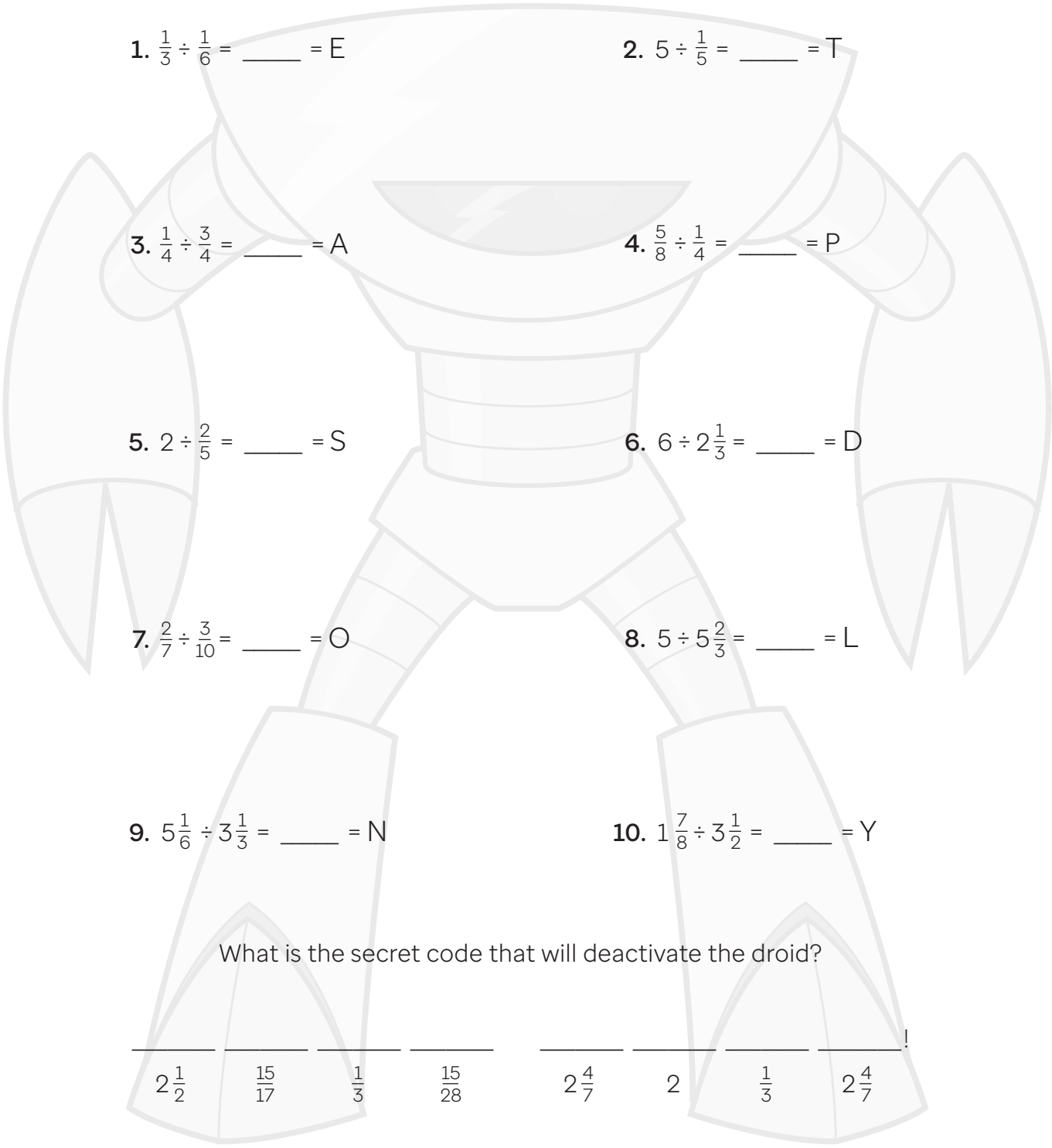
Escape Room

The Numerators have overcome every obstacle so far, but they need your math skills again. The droids have trapped them in a warehouse, but Dr. Jax has found a way out. Solve the equations to escape. The first one has been solved for you. Remember to follow the arrows to complete the rest of the equations.



Deactivate the Droid

A giant droid has found The Numerators! Help them deactivate it by figuring out the secret code. Solve each problem and write your answers in the simplest form. After you solve all the problems, use your answers to figure out the secret code. Write the letter that is next to each answer in the blank above the correct fraction to deactivate the droid.



1. $\frac{1}{3} \div \frac{1}{6} =$ _____ = E

2. $5 \div \frac{1}{5} =$ _____ = T

3. $\frac{1}{4} \div \frac{3}{4} =$ _____ = A

4. $\frac{5}{8} \div \frac{1}{4} =$ _____ = P

5. $2 \div \frac{2}{5} =$ _____ = S

6. $6 \div 2\frac{1}{3} =$ _____ = D

7. $\frac{2}{7} \div \frac{3}{10} =$ _____ = O

8. $5 \div 5\frac{2}{3} =$ _____ = L

9. $5\frac{1}{6} \div 3\frac{1}{3} =$ _____ = N

10. $1\frac{7}{8} \div 3\frac{1}{2} =$ _____ = Y

What is the secret code that will deactivate the droid?

_____	_____	_____	_____	_____	_____	_____	_____!
$2\frac{1}{2}$	$\frac{15}{17}$	$\frac{1}{3}$	$\frac{15}{28}$	$2\frac{4}{7}$	2	$\frac{1}{3}$	$2\frac{4}{7}$

Figure Out the Function

Dr. Jax has found these function tables that hold the answer to the first step in deactivating the droids, but he needs your help. Fill in the missing values in each function table and write an equation that shows the rule for each one. We gave you the rule for the first one at the top of the table.

1.

x	$y = 4x - 1$
1	3
2	7
3	____
4	____
5	____
6	____
7	____

2.

x	y
0	0
1	5
2	10
3	15
4	____
5	____
6	____

Rule: y = _____

3.

x	y
0	3
1	5
2	7
3	____
4	____
5	____
8	____

Rule: y = _____

4.

x	y
0	18
1	21
2	24
3	____
6	____
11	____
25	____

Rule: y = _____

Defeat the Droids

You have done an amazing job so far. Now it's time to help The Numerators defeat the droids once and for all. Evaluate each expression and draw a line to the correct answer. Write the corresponding letter to the answer where it is found below. Complete each one correctly to break the code and tell them how to defeat the droids once and for all!

1.	H $27 + j$ $j = 56$	8
2.	B $n - 38$ $n = 82$	15
3.	N $r + 15.6$ $r = 34.5$	21
4.	S $3g$ $g = 7$	27.2
5.	E $5b$ $b = 18$	51.3
6.	O $64 \div d$ $d = 8$	44
7.	U $3.4f$ $f = 8$	50.1
8.	D $\frac{i}{9}$ $i = 135$	80.24
9.	A $582.3 - y$ $y = 495.4$	83
10.	R $5.7u$ $u = 9$	85
11.	P $.4v$ $v = 200.6$	86.9
12.	T $\frac{3{,}867.5}{t}$ $t = 45.5$	90

____	____	____	____		____	____	____		
80.24	27.2	21	83		85	83	90		
____	____	____		____	____	____	____	____	____!
51.3	90	15		44	27.2	85	85	8	50.1

Check out **stjude.org/math** to start fundraising online today!

Packed with tools to help you manage your fundraising efforts, raise more money and save time, **stjude.org/math** includes tools to help you:

- Find your school
- Create your own fundraising webpage and set your goal
- Accept online donations
- Integrate with Facebook fundraising

Scan to find your school and sign up!

St. Jude patient
Rinoa

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