# LEVEL 5 

FUNBOOK

## There's Power In Numbers

stjude.org/math

St. Jude patient Melanie

## St. Jude Math-A-Thon

## Welcome to The St. Jude Math-A-Thon®!

Thank you for supporting St. Jude Children's Research Hospital ${ }^{\circledR}$. 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 Melanie

When Melanie was diagnosed with brain cancer and referred to St. Jude, she wasn't nervous. She was actually looking forward to treatment-chemotherapy, proton therapy and visits from St. Jude therapy dog Huckleberry-because to Melanie, St. Jude meant getting well again. When you donate to St. Jude, you're supporting the research hospital with the best survival rates for some of the most aggressive childhood cancers. Treatments invented at St. Jude have helped push the overall childhood cancer survival rate from 20\% to more than 80\%. And we won't stop until no child dies from cancer.

## 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 it can cost on average \$425,000 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-because all a family should worry about is helping their child live.
- Some of our research facilities can use quite a bit of power-way more than your typical building. Special places like our Proton Therapy Center require lots and lots of power. Luckily our engineers are able to use math to make sure everything keeps running smoothly.


## 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.


## C

My name is Dr. Jax. Not long ago, four ordinary students discovered they had extraordinary mathematical abilities. Under my guidance, they learned to harness their skills into incredible powers-powers that can be



The Solar System and the Sun: Far Out!

The Numerators are flying into space to measure each planet's distance from the sun (in miles)! Read each number name below. Write the standard form of the number on each blank line. Then look at the chart to see how "far out" each planet is, and write each planet's name next to the correct answer.

1. Thirty-five million, nine hundred thousand miles
2. Eight hundred eighty-six million, seven hundred thousand miles
3. Ninety-two million, nine hundred sixty thousand miles
4. Two billion, seven hundred ninety-four million miles
5. Four hundred eighty-three million, six hundred thousand miles
6. Sixty-seven million, two hundred thousand miles
7. One billion, seven hundred eighty-three million miles
8. One hundred forty-one million, six hundred thousand miles
9. $\qquad$
$\qquad$
10. $\qquad$
$\qquad$
11. $\qquad$
$\qquad$
12. $\qquad$
$\qquad$
13. $\qquad$
$\qquad$
14. $\qquad$
$\qquad$
15. $\qquad$
$\qquad$
16. $\qquad$
$\qquad$


## Spying on the Robots

The Numerators are keeping an eye on the diabolical robots through their super-powered telescopes. Choose a number from the telescope lens to fill in each blank so that the result matches the answer shown. You must use all the numbers in each lens and may not use a number more than once. Note: Multiple ways of solving the problems are possible!
A.

$\qquad$
$\qquad$ x $\qquad$ $+$ $\qquad$ $=24$
B.

$\qquad$ $\div$ $\qquad$ $x$ $\qquad$ - $\qquad$ $=20$
C.

D.

$\qquad$ $+$ $\qquad$ ) $\qquad$ x $\qquad$ $=4$
E.

$\qquad$ $-\quad \times$ $\qquad$
$\qquad$ $=0$
G.

$\qquad$
$\qquad$ x $\qquad$ $+$ $\qquad$ $=30$
F.

$\qquad$ $+$ $\qquad$ ) $x$ $\qquad$ $\div$ $\qquad$ $=20$
H.

$\qquad$ - $\qquad$ ) x ( $\qquad$ $\div$ $\qquad$ ) $=16$

## Top Ten: Heaviest Land Animals

These beasts are heavy! Do the multiplication problems. Then write each animal's weight, in pounds, in the space provided. The first one is done for you.

|  | 2. 147 $\underline{\times 9}$ <br> Weight: $\qquad$ <br> Bison |
| :---: | :---: |
| 3. 60 <br> $\times 11$ <br> Weight: $\qquad$ <br> Camel | 4. 43 $\begin{array}{r} \times 40 \\ \hline \end{array}$ <br> Weight: $\qquad$ <br> Hippopotamus |
| 5. 82 <br> $\times 16$ <br> Weight: $\qquad$ <br> Tiger | 6. $\begin{array}{r}49 \\ \times 45 \\ \hline\end{array}$ <br> Weight: $\qquad$ <br> Rhino |
| 7. 294 $\times 15$ <br> Weight: $\qquad$ <br> Grizzly Bear | 8. 4,409 $\times 2$ <br> Weight: $\qquad$ <br> Giraffe |
| 9. 189 $\times 14$ $\qquad$ <br> Moose <br> , | 10. 689 <br> $\times 16$ <br> Weight: $\qquad$ <br> African Elephant |

## Prehistoric Monument

## Monuments are usually built to honor people. Not this one! At this Colorado monument,

 you can discover fragments of a world where the largest land creatures of all time once roamed! The first one is done for you.To learn the subject of this monument, write the letter that appears beneath the problem that would not match the estimated quotient.

## Estimated Quotient

| $\text { 1. } 5$ | $\begin{aligned} & 27 \div 5=5.4 \\ & B \end{aligned}$ | $\begin{aligned} & 316 \div 58=\underline{5.448} \\ & C \end{aligned}$ | $426 \div 68=\underline{6.265}$ <br> (D) |
| :---: | :---: | :---: | :---: |
| 2. 8 | $24 \div 8=$ | $\begin{aligned} & 479 \div 59= \\ & \text { A } \end{aligned}$ $\qquad$ | $\begin{aligned} & 6,432 \div 801= \\ & \bigcirc \end{aligned}$ |
| 3. 9 | $\begin{aligned} & 90 \div 9= \\ & N \end{aligned}$ | $\begin{aligned} & 642 \div 71= \\ & \mathrm{G} \end{aligned}$ $\qquad$ | $\begin{aligned} & 8,080 \div 892= \\ & P \end{aligned}$ |
| 4. 70 | $\begin{aligned} & 850 \div 12= \\ & M \end{aligned}$ | $\begin{aligned} & 6,800 \div 97= \\ & \mathrm{N} \end{aligned}$ | $\begin{aligned} & 1,626 \div 14= \\ & \bigcirc \end{aligned}$ |
| 5. 40 | $\begin{aligned} & 198 \div 5= \\ & P \end{aligned}$ | $\begin{aligned} & 269 \div 7= \\ & \mathrm{R} \end{aligned}$ | $\begin{aligned} & 501 \div 8= \\ & S \end{aligned}$ |
| 6. 60 | $\begin{aligned} & 3,000 \div 59= \\ & \text { A } \end{aligned}$ | $\begin{aligned} & 432 \div 7=-\quad \\ & B \end{aligned}$ | $\begin{aligned} & 5,427 \div 91= \\ & C \end{aligned}$ |
| 7. 20 | $\begin{aligned} & 61 \div 3= \\ & T \end{aligned}$ | $\begin{aligned} & 192 \div 17= \\ & U \end{aligned}$ | $\begin{aligned} & 6,042 \div 297= \\ & \mathrm{V} \end{aligned}$ |
| 8. 80 | $\begin{aligned} & 1,234 \div 19= \\ & R \end{aligned}$ | $\begin{aligned} & 555 \div 7=\square \\ & S \end{aligned}$ | $\begin{aligned} & 4,912 \div 61= \\ & \text { T } \end{aligned}$ |

$\overline{1}-\frac{}{2}-\frac{}{4}-\frac{}{5}-\frac{}{6}-\frac{}{8}$

## Crisscross Quotients

This puzzle is similar to a crossword puzzle. But instead of using letters to form words, you use digits to form numbers. Use the clues below to complete the puzzle

E. $16,385 \div 5$
C. $1,758 \div 2$
G. $696 \div 58$
D. $8,148 \div 84$
I. $1,653 \div 87$
F. $10,293 \div 47$
J. The remainder in $52 \div 12$
H. $1,075 \div 5$
K. $49,428 \div 12$
L. $10,944 \div 8$
N. $2,226 \div 42$
M. $15,720 \div 4$
O. $282 \div 3$
P. $17,040 \div 40$
Q. The remainder in $3,821 \div 72$
Q. $1,881 \div 33$
R. $3,320 \div 10$
R. The remainder in $1,618 \div 36$
S. $23,616 \div 32$
T. $32,886 \div 81$

## Decode the Answer

To decode the answer to the question below, work each problem and find your answer in the code. Each time the answer appears in the code, write the letter of that problem above it.


What do Smokey the Bear \& Alexander the Great have in common?

$$
\overline{24} \overline{17} \overline{38} \overline{51} \quad \overline{63} \frac{}{21} \frac{}{24}-\frac{}{17}
$$

$\overline{17} \overline{22} \overline{32} \overline{38} \overline{24} \overline{17} \overline{38} \quad \overline{29} \quad \overline{22} \quad \overline{28} \quad \frac{}{38}$
$\overline{28} \overline{43} \overline{14} \overline{42} \overline{38} \quad \overline{44} \quad \overline{22} \quad \overline{28} \quad \overline{38}$

## LEVEL 5 <br> FUNBOOK

## Answer Key

Page 5
The Solar System and the Sun: Far Out!

1. 35,900,000 miles; Mercury
2. $886,700,000$ miles; Saturn
3. 92,960,000 miles; Earth
4. 2,794,000,000 miles; Neptune
5. 483,600,000 miles; Jupiter
6. 67,200,000 miles; Venus
7.1,783,000,000 miles; Uranus
7. 141,600,000 miles; Mars

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## Spying on the Robots

Accept all valid solutions that use the four digits given and the correct order of operations. Possible answers include:
A. $4+3 \times 5+5=24$
B. $8 \div 1 \times 3-4=20$
C. $(8+6)-2 \times 5=4$
D. $3 \times 3+6 \times 3=27$
E. $3-6 \times 2 \div 4=0$
F. $(6+2) \times 5 \div 2=20$
G. $9 \div 3 \times(7+3)=30$
H. $(9-5) \times(8 \div 2)=16$


Page 7
Top Ten: Heaviest Land Animals

1. 485 pounds
2. 1,323 pounds
3. 660 pounds
4. 1,720 pounds
5. 1,312 pounds
6. 2,205 pounds
7. 4,410 pounds
8. 8,818 pounds
9. 2,646 pounds
10.11,024 pounds

## Page 8

Prehistoric Monument

1. D $426 \div 68 \approx 6$
2. $124 \div 8=3$
3. $\mathrm{N} 90 \div 9=10$
4. $01,626 \div 14 \approx 120$
5. S $501 \div 8 \approx 60$
6. $\mathrm{A} 3,000 \div 59 \approx 50$
7. U $192 \div 17 \approx 10$
8. $\mathrm{R} 1,234 \div 19 \approx 60$

Page 9
Crisscross Quotients

| ${ }^{4} 3$ | 2 | ${ }^{8} 1$ |  | ${ }^{\circ} 8$ | 9 |
| :--- | :--- | :--- | :--- | :--- | :--- |

Page 10
Decode the Answer
I. 43 M. 28
V. 32 O. 21
Y. $51 \quad$ L. 42
S. $29 \quad$ T. 24
H. 17 B. 63
N. 44 A. 22
D. 14 E. 48

Coded answer: They both have the same middle name.


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

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+ Create your own fundraising webpage and set your goal
+ Accept online donations
+ Integrate with Facebook Fundraising


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