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ISSUE DATES	9/2	9/16	10/7	10/28	11/18	12/9	1/13	2/3	3/3	3/24	4/14	5/5
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**COMING SOON** You'll need to register for access to your online resources.  
[www.scholastic.com/math](http://www.scholastic.com/math) Your access code: **exponent**

**WATCH A VIDEO BEFORE READING!**

Each issue of *Scholastic MATH* magazine has an accompanying interactive online edition. Go to [www.scholastic.com/math](http://www.scholastic.com/math), where you'll find videos related to various articles.

One of the videos in this month's issue was made with the help of *Switched at Birth* star Katie Leclerc. Daphne, the actress's character on the show, is deaf and uses American Sign Language. Katie is actually hard

of hearing and made a video just for *MATH* readers about the signs used for numbers and mathematical operations. Watch videos before you read the accompanying articles in the magazine to get your students engaged and ready to learn more about each real-world topic.

Every issue also has an instructional math video. This month's video teaches a lesson about proportional relationships.



**SKILLS GUIDE**

SKILLS	FEATURES	COMMON CORE STANDARDS	ONLINE MATERIALS: <a href="http://www.scholastic.com/math">www.scholastic.com/math</a>
CIRCUMFERENCE	How to Catch a Space Rock, p. 4	Measurement & Data, The Number System, Expressions & Equations, Geometry	<ul style="list-style-type: none"> <li>• Download a skills sheet</li> <li>• Watch a video</li> </ul>
ORDER OF OPERATIONS	Number Signs, p. 6	The Number System, Expressions & Equations	<ul style="list-style-type: none"> <li>• Download a skills sheet</li> <li>• Watch a video</li> </ul>
STATISTICS	How We Read, p. 8	Measurement & Data, Ratios & Proportional Relationships, The Number System, Statistics & Probability	<ul style="list-style-type: none"> <li>• Pop-up charts and graphs</li> </ul>
PROPORTIONAL RELATIONSHIPS	Butterflies in a Bind, p. 10	Ratios & Proportional Relationships, The Number System	<ul style="list-style-type: none"> <li>• Download a skills sheet</li> <li>• Watch an instructional video</li> </ul>
PERCENT OF A NUMBER	Americans for Darth Vader!, p. 12	Ratios & Proportional Relationships, The Number System	<ul style="list-style-type: none"> <li>• Download two differentiated skills sheets</li> </ul>
AVERAGE/MEAN	You're Out!, p. 14	The Number System, Statistics & Probability	<ul style="list-style-type: none"> <li>• Download a skills sheet</li> </ul>
SOLVING TWO-STEP EQUATIONS	Making Music With Miguel, p. 16	The Number System, Expressions & Equations	<ul style="list-style-type: none"> <li>• Play a game</li> </ul>

## PAGE 4

### CIRCUMFERENCE

## How to Catch a Space Rock

### STANDARDS

#### COMMON CORE STATE STANDARDS FOR MATH:

Measurement & Data, The Number System, Expressions & Equations, Geometry

### OBJECTIVE

To use estimated diameters of asteroids and the circumference formula to calculate circumference, diameter, and radius.

### BEFORE READING

- Watch a background video on asteroids.
- Ask students: What do you know about asteroids? What damage could an asteroid do if it hit Earth?

### LESSON

**1** Go to [www.scholastic.com/math](http://www.scholastic.com/math). Open the digital edition to page 4 and have students do the same in their magazines. Read the article together as a class.

**2** Review the formula for calculating circumference.  $C = \pi d$  or  $C = 2\pi r$   
Rework the formulas to solve for diameter,  $d$ , or radius,  $r$ , if given the circumference.  $d = \frac{C}{\pi}$   $r = \frac{C}{2\pi}$

**3** Have students work individually to answer the questions and review the answers as a class.

### S.T.E.M. CONNECTIONS

- Explain how scientists plan to capture an asteroid.
- What data would you want to collect if the goal was to avoid a collision between Earth and an asteroid?

### SKILLS SHEETS

Go to page 5 of the digital issue ([www.scholastic.com/math](http://www.scholastic.com/math)). Click on the "5 More Questions" button for additional math questions related to asteroid size and circumference.

### RESOURCES

- Click on the blue Web Links tab along the bottom of the digital edition to read about NASA's recent discovery of the 10,000th near-Earth object and more.
- Click on the green Videos tab to watch a video about asteroids.

## PAGE 6

### ORDER OF OPERATIONS

## Number Signs

### STANDARDS

#### COMMON CORE STATE STANDARDS FOR MATH:

The Number System, Expressions & Equations

### OBJECTIVE

To use numbers in American Sign Language (ASL) and order of operations to solve equations.

### BEFORE READING

- Ask students: Have you seen the show *Switched at Birth*? What do you know about ASL?

### LESSON

**1** Go to [www.scholastic.com/math](http://www.scholastic.com/math). Open the digital edition to page 6 and have students do the same in their magazines. Read the article together as a class.

**2** Watch a video of Katie Leclerc from *Switched at Birth* teaching numbers and math symbols in ASL.

**3** After watching the video, see if students remember how to sign numbers the 1 through 10. Review order of operations.

**4** Have students work in pairs to sign and answer the questions.

### COMMON CORE CRITICAL THINKING

- Every language develops new words over time. How do you think signs are developed for new words, technologies, or other things that didn't exist when sign language was first created?
- Do you think there are dialects of sign? What about signs for various social settings (i.e. professional versus peer, etc.)?

### SKILLS SHEETS

Go to page 7 of the digital issue ([www.scholastic.com/math](http://www.scholastic.com/math)). Click on the "5 More Questions" button for additional math questions related to order of operations using American Sign Language.

### RESOURCES

- Click on the blue Web Links tab along the bottom of the digital edition to learn more about *Switched at Birth*'s ASL episode and to download Marlee Matlin's free ASL app.

## PAGE 8

STATISTICS

## How We Read

### STANDARDS

#### COMMON CORE STATE STANDARDS FOR MATH:

Measurement & Data, Ratios & Proportional Relationships, The Number System, Statistics & Probability

### OBJECTIVE

To analyze data in charts, circle graphs, and bar graphs to learn about new reading trends.

### BEFORE READING

- Ask students whether they read books in print, electronically, or both. Write down their answers.
- Ask students: Do you check out books from libraries or buy books from bookstores?

### LESSON

**1** Go online to [www.scholastic.com/math](http://www.scholastic.com/math). Open the digital edition to page 8 and have students do the same in their magazines. Read the introduction as a class and discuss recent trends in book publishing and reading.

**2** Calculate the percent of the class that reads e-books. How does that compare with the information in the graph?

**3** Review each chart and graph to ensure students understand the information presented. Discuss changes in the data from 2011 to 2012.

### COMMON CORE CRITICAL THINKING

- Why do you think there is an increasing interest in reading: e-books, book series, or both?
- How will the way we read change with social media (Facebook, Twitter, etc.)?
- How would you improve e-readers? What add-ons would you include?

### RESOURCES

- Click on the blue Web Links tab along the bottom of the digital edition to see more reading statistics.

## PAGE 10

PROPORTIONAL RELATIONSHIPS

## Butterflies in a Bind

### STANDARDS

#### COMMON CORE STATE STANDARDS FOR MATH:

Ratios & Proportional Relationships, The Number System

### OBJECTIVE

To use proportions to answer questions related to the monarch butterfly population.

### BEFORE READING

- Show students a map of the monarch migration path and have students estimate the distance the insects travel.

### LESSON

**1** Go online to [www.scholastic.com/math](http://www.scholastic.com/math). Open the digital edition to page 10 and have students do the same in their magazines. Read the article together as a class.

**2** Watch the instructional video about proportions.

**3** Use the mask tool to hide everything but the proportions box. Review proportions. A proportion is a statement that two ratios or fractions are equal.  $\frac{a}{b} = \frac{c}{d}$  as in  $\frac{2}{7} = \frac{6}{21}$

### S.T.E.M. CONNECTIONS

- Why is protecting monarch butterflies important?
- What are other consequences of a declining monarch butterfly population?

### SKILLS SHEETS

Go to page 11 of the digital issue ([www.scholastic.com/math](http://www.scholastic.com/math)). Click on the "5 More Questions" button for additional math problems using proportions involving monarch migration.

### RESOURCES

- Click on the blue Web Links tab along the bottom of the digital edition to learn more about monarch butterflies.

### DIGITAL ISSUE KEY:



SHOW ALL PAGES



HOME



MASK TOOL



DIGITAL STICKY NOTES



TEXT HIGHLIGHTER



DRAWING TOOL



GAME



POP-UP



VIDEO PLAYER

## PAGE 12

PERCENT OF A NUMBER

### Americans for Darth Vader!

#### STANDARDS

##### COMMON CORE STATE STANDARDS FOR MATH:

Ratios & Proportional Relationships, The Number System

#### OBJECTIVE

To calculate the percent of a number to see which petitions made the necessary signatures for a response from the White House.

#### BEFORE READING

- Ask students: If you could talk to the President about anything, what would you say?

#### LESSON

**1** Go online to [www.scholastic.com/math](http://www.scholastic.com/math). Open the digital edition to page 12 and have students do the same in their magazines. Read the article together as a class.

**2** Review using proportions to solve percent problems.  $\frac{\text{part}}{\text{whole}} = \frac{\text{percent}}{100}$

**3** Have students work in pairs to answer the questions. Review answers as a class, discussing common errors made in calculations.

#### COMMON CORE CRITICAL THINKING

- Should the number of petitions be proportional to the population of the United States?
- What are some issues that you would petition for?

#### SKILLS SHEETS

Click on the orange Skills Sheets tab at the top of the link to the digital issue ([www.scholastic.com/math](http://www.scholastic.com/math)) to download and print differentiated reproducibles for this article—an easier activity converting decimals to percents and a more difficult percents-over-100 activity.

#### RESOURCES

- Click on the blue Web Links tab along the bottom of the digital edition to visit the “We the People” site and see which petitions are popular right now.

## PAGE 14

AVERAGE/MEAN

### You're Out!

#### STANDARDS

##### COMMON CORE STATE STANDARDS FOR MATH:

The Number System, Statistics & Probability

#### OBJECTIVE

To calculate mean to find out about the high strikeout rates in baseball.

#### BEFORE READING

- Ask students: Do you watch baseball? Who are your favorite players? Why? Do you notice if they strike out frequently?

#### LESSON

**1** Go online to [www.scholastic.com/math](http://www.scholastic.com/math). Open the digital edition to page 14 and have students do the same in their magazines. Read the article together as a class.

**2** Use the mask tool to hide everything but the “Finding an Average (Mean)” box. Discuss it as a class and ask students for examples of when average is used.

**3** Have students answer the questions independently. Review and discuss the answers as a class.

#### COMMON CORE CRITICAL THINKING

- How can averages be misinterpreted?
- Are averages the best way to give information about a set of data?
- What are other ways to get information about a set of data?

#### SKILLS SHEETS

Go to page 15 of the digital issue ([www.scholastic.com/math](http://www.scholastic.com/math)). Click on the “5 More Questions” button for additional math problems working with averages and baseball statistics.

#### RESOURCES

- Click on the blue Web Links tab along the bottom of the digital edition to see a graphic about strikeouts.

NAME: \_\_\_\_\_

## Issue Skills Review

For use with the September 16, 2013, issue of Scholastic *MATH* magazine.

Fill in the letter of the correct answer, or write the correct answer.

**1** The formula for the circumference of a circle is...

- (A)  $\pi r$     (B)  $\pi r^2$     (C)  $\pi d$     (D)  $2\pi d$

**2** What is the circumference of a circle with a diameter of 68 feet?

\_\_\_\_\_

**3** A total of 49,890 people signed a November 2012 petition calling for President Barack Obama to be impeached, or removed from office. If the petition had been written today, what percent of the required 100,000 signatures would it still need to receive to get a response?

\_\_\_\_\_

**4** By the afternoon of May 8, 2013, a petition asking the government to “join America and Australia to form Ameristralia” had received 5.934% of the signatures required to get a response. At least how many more signatures would it have needed to get a response?

\_\_\_\_\_

**5** Say you play on a baseball team, and in 5 games, your team strikes out 7 times, 8 times, 6 times, 13 times, and 12 times. What is your team’s average number of strikeouts per game?

\_\_\_\_\_

**6** During the 1992 season, MLB players struck out a total of 23,538 times. That was an average of 5.588 strikeouts per team per game. About how many MLB games were played\* in 1992? Round your answer to the nearest whole number.

\_\_\_\_\_

**7**  $42x - 59 = 697$ ;  $x =$  \_\_\_\_\_

- (A) 13  
(B) 18  
(C) 35  
(D) 27,552

**8**  $\frac{676}{y} + 90 = 116$ ;  $y =$  \_\_\_\_\_

- (A) 3  
(B) 26  
(C) 30  
(D) 17,576

**9** In 1996, monarch butterfly colonies in Mexico occupied 20.97 hectares. Using 50,000,000 butterflies per hectare, what proportion would you write to determine the monarch population that year?

\_\_\_\_\_

**10** What was the approximate monarch population in 1996?

\_\_\_\_\_

\* Note: Because two teams play in each game, each game counts as two games.

NAME: \_\_\_\_\_

## Problem of the Day

Try one of these quick exercises each day as a fast, fun way to start your math lesson!

<p><b>DAY 1</b></p> <p>Which of the following numbers is smaller and by how much? Write your answer in word form. Three hundred six ten thousandths or thirty-six thousandths?</p>	<p><b>DAY 2</b></p> <p>The perimeter of a rectangle is 30 cm. The length is 4 times as great as its width. What are the measurements of the sides?</p>	<p><b>DAY 3</b></p> <p>What is the greatest common factor of 30, 54, and 72?</p>	<p><b>DAY 4</b></p> <p>Liam needs to purchase 4.8 meters of tape for a project. If each roll of tape contains 80 cm and costs \$3, what is the total cost of the tape that Liam must buy?</p>	<p><b>DAY 5</b></p> <p>NASA wants to find a 500-ton asteroid to study. How many times as big as the 10,000-ton meteor that flew over Russia is the asteroid that NASA is hoping to find?</p>
<p><b>DAY 6</b></p> <p>Which two of the fractions below have a difference of <math>\frac{1}{4}</math>?</p> <p><math>\frac{6}{8}</math>   <math>\frac{1}{2}</math>   <math>\frac{1}{4}</math>   <math>\frac{4}{6}</math>   <math>\frac{1}{3}</math></p>	<p><b>DAY 7</b></p> <p>Use the following 4 numbers to make a proportion.</p> <p style="text-align: center;">6, 9, 24, 36</p>	<p><b>DAY 8</b></p> <p>In 2006, there were 73,700,000 children under the age of 18 in the U.S. In 1950, there were about 36,850,000. What percent of the 2006 population is that?</p>	<p><b>DAY 9</b></p> <p>Sarah is reading a book that is 250 pages long. She has read 100 pages so far. On Friday, she will read <math>\frac{1}{3}</math> of the remaining pages. How many pages will she read on Friday?</p>	<p><b>DAY 10</b></p> <p>Place parentheses in the following expression to make it equal to 84.</p> <p style="text-align: center;"><math>4 \times 12 + 36 \div 9 - 8</math></p>
<p><b>DAY 11</b></p> <p>The Chesapeake Bay Crater was discovered in the early 1980s. It has an average diameter of 85 kilometers. What is the approximate circumference?</p>	<p><b>DAY 12</b></p> <p>A restaurant has 17 square tables. There are 8 people sitting at each table. Each person is wearing a pair of shoes. How many shoes in total are being worn by people at the tables?</p>	<p><b>DAY 13</b></p> <p>The area of a room is 225 square feet. If this room is square, can a bookcase that is 16 feet long fit in this room?</p>	<p><b>DAY 14</b></p> <p>The sum of two consecutive integers is 95. What are the two integers?</p>	<p><b>DAY 15</b></p> <p>A model airplane in Brian's collection has a scale of <math>\frac{1}{72}</math>. If the model is 3 inches long, how many feet long is the real airplane?</p>
<p><b>DAY 16</b></p> <p>Justin had grades of 80, 79, 82, 84, and 71 on 5 assignments. If Justin wants his average grade to be at least 80, what is the minimum grade he needs on the next assignment?</p>	<p><b>DAY 17</b></p> <p>The sum of two numbers is <math>38\frac{2}{3}</math>. The difference of the two numbers is 22. What are the numbers?</p>	<p><b>DAY 18</b></p> <p>Erik goes to a fruit stand and sees the following sign:</p> <p>6 bananas for \$1.50 5 oranges for \$3.00</p> <p>What's the total cost of 2 bananas and 2 oranges?</p>	<p><b>DAY 19</b></p> <p>"We the People" increased the signatures required in 30 days from 25,000 to 100,000. What is the increase in the average number of signatures needed daily to meet the goal?</p>	<p><b>DAY 20</b></p> <p>There are about 50 million monarch butterflies in a hectare, which is 10,000 square meters. How many butterflies are there in 2,500 square meters?</p>

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## COVER

### Collision Course?

The asteroid was about 17,162.22 miles from Earth.

## PAGES 2-3

### Numbers in the News

#### • SINKING FEELING

The Mexican sinkhole is about 288 feet wider than the Chicago sinkhole.

#### • SWEET STAMPS

The price per stamp is \$1.65.

#### • AN EGG-CITING AUCTION

You could stack 5 chicken eggs on top of each other.

#### • DO THE MATH!

Base jumper Valery Rozov leapt from 21,500 feet.

## PAGE 4

### How to Catch a Space Rock

- 314 meters
- 3,862.2 meters
- 22.5 meters
- Asteroid 2013 HG19 by 5 meters
- 15 times

## PAGE 6

### Number Signs

- 12
- 35
- 21
- 75
- 21

## PAGE 8

### How We Read

- B
- D
- C
- B
- B
- B
- age 9-11
- \$240,784,000
- about 11 books
- about \$2,974,033,000

## PAGE 10

### Butterflies in a Bind

1a.

$$\frac{50,000,000 \text{ monarchs}}{1 \text{ hectare}} = \frac{y \text{ monarchs}}{1.19 \text{ hectares}}$$

1b. 59,500,000 monarchs

2a. 2009

2b.

$$\frac{50,000,000 \text{ monarchs}}{1 \text{ hectare}} = \frac{y \text{ monarchs}}{1.92 \text{ hectares}}$$

$y = 96,000,000$  monarchs

3.

$$\frac{50,000,000 \text{ monarchs}}{1 \text{ hectare}} = \frac{y \text{ monarchs}}{7.54 \text{ hectares}}$$

$y = 377,000,000$  monarchs

4a. 2003

4b.

$$\frac{50,000,000 \text{ monarchs}}{1 \text{ hectare}} = \frac{y \text{ monarchs}}{11.12 \text{ hectares}}$$

$y = 556,000,000$  monarchs

5.

$$\frac{50,000,000 \text{ monarchs}}{1 \text{ hectare}} = \frac{850,000,000 \text{ monarchs}}{y \text{ hectares}}$$

$y = 17$  hectares

## PAGE 12

### Americans for Darth Vader

- 9,819 signatures
- 27.334%
- a. 9,435 more signatures
- b. 37.74%
- a. 14,780
- b. 39,780 signatures
- 69.86%

## PAGE 14

### You're Out!

- a. 11 strikeouts per game
- b. 9.7 strikeouts per game
- 6.4 strikeouts per game
- 8.6 strikeouts per game
- 7.5 strikeouts per team per game
- a. 1.3 strikeouts per team per game
- b. 6.2 more strikeouts per team per game

## BACK PAGE

### Making Music With Miguel

- B
- A
- B
- B
- A

*To find the answers online, click on "Teaching Resources."*

# ANSWERS

## TG PAGE 5

### Skills Review

- C
- 213.52 feet
- 50.11%
- at least 94,066 more signatures
- 9.2 strikeouts per game
- about 4,212 games
- B
- B
- 9.

$$\frac{50,000,000 \text{ monarchs}}{1 \text{ hectare}} = \frac{x \text{ monarchs}}{20.97 \text{ hectares}}$$

- 1,048,500,000 monarchs

## TG PAGE 6

### Problem of the Day

- three hundred six ten thousandths by fifty-four ten thousandths
- 3 cm by 12 cm
- 6
- \$18
- 20 times
- $\frac{1}{2} - \frac{1}{4}$
- $\frac{9}{36} = \frac{6}{24}$
- 50%
- 50 pages

- $4 \times 12 + 36 \div (9 - 8)$
- 266.9 km
- 272 shoes
- No. Each wall is 15 feet long.
- 47 and 48
- 216 feet
- 84
- $30\frac{1}{3}$  and  $8\frac{1}{3}$
- \$1.70
- 2,500 signatures per day
- 12,500,000 butterflies

To find the answers online, click on "Teaching Resources."

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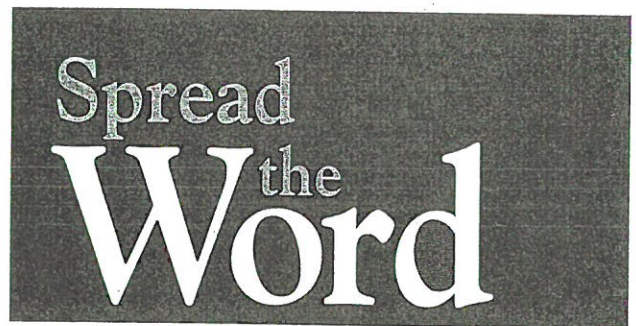
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