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ISSUE DATES	9/1	9/15	10/6	10/27	11/17	12/8	1/12	2/2	3/2	3/23	4/13	5/4
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Registration is now required for access to your online resources.
www.scholastic.com/math YOUR ACCESS CODE: **numerator**

Dear Teacher,

Beatbox, *buzzkill*, and *chillax*: These are just a few new entries in Scrabble's official dictionary, the latest edition of which is sure to give kids an edge over any grown-up competitor! Readers can use probability to calculate their odds of drawing favorable tiles (maybe an *S* for *selfie*?)—just in time to stage a board game challenge over winter break.

Elsewhere in this issue, students will solve inequalities to learn about camera-carrying drones that capture amazing aerial footage. And brave geometers can step to the edges of some irregularly shaped—and vertigo-inducing!—viewing platforms.

We'll see you next year!

Best wishes, The Editors
mathmag@scholastic.com



SKILLS GUIDE

PAGE	SKILL & ARTICLE TITLE	COMMON CORE STATE STANDARDS	ONLINE RESOURCES www.scholastic.com/math
4	Inequalities FILM TAKES FLIGHT	Expressions & Equations: Write inequalities of the form $x > c$ or $x < c$ to represent conditions in real-world problems.	<ul style="list-style-type: none"> Download a differentiated Common Core skills sheet, plus 5 More Questions. Learn more with Web links.
6	Probability CAN YOU SPELL <i>SELFIE</i> ?	Statistics & Probability: Understand that probability is a number between 0 and 1 that expresses the likelihood of a chance event occurring.	<ul style="list-style-type: none"> Download a differentiated Common Core skills sheet, plus 5 More Questions. Watch an instructional video. Learn more with Web links.
8	Unit Rates GOING THE DISTANCE	Ratios & Proportional Relationships: Solve unit rate problems involving constant speed.	<ul style="list-style-type: none"> Download a differentiated Common Core skills sheet, plus 5 More Questions. Watch a background video.
12	Statistics FIST-BUMP TO FIGHT GERMS	Statistics & Probability: Summarize numerical data sets in relation to their context.	<ul style="list-style-type: none"> Watch a background video. Learn more with Web links.
14	Area WHAT A VIEW!	Geometry: Solve problems involving the area of two-dimensional objects composed of triangles, quadrilaterals, and polygons.	<ul style="list-style-type: none"> Download a differentiated Common Core skills sheet, plus 5 More Questions. Learn more with Web links.
16	Positive & Negative Integers ANNIE'S BACK!	Number System: Understand the rules for multiplying and dividing signed numbers.	<ul style="list-style-type: none"> Play a game.

PAGE 4 • Inequalities

FILM TAKES FLIGHT


STANDARD

Reason about and solve one-variable inequalities.

OBJECTIVE

Solve and graph inequalities regarding the capabilities of camera-carrying drones.

LESSON

- 1 Ask students to raise their hands if they've heard of *drones*. Call on a volunteer to explain what a drone is, or share the definition if students are unsure. (*A drone is a type of aircraft that flies without a pilot on board.*) Can the class think of any uses for this technology? (*automated deliveries, mapping or taking pictures from the air, search-and-rescue missions*)
- 2 Go to www.scholastic.com/math and open your digital issue to page 4. Have students read the article's headline and review the images. Based on the text and visuals, what might be another use for drones? (*filming movies*) Have students take turns reading the article aloud.
- 3  Enlarge the "Graphing Inequalities" box on page 5. Explain that inequalities are number sentences that compare two quantities. Direct students' attention to the word clues in the chart. In an inequality problem, word clues can help you figure out which symbol to use, and how to graph the resulting inequality.
- 4 Pair off students and have them answer the questions on page 5. Remind them to refer to the word-clues column if they get stuck.

COMMON CORE CRITICAL THINKING

- Should the FAA allow production companies to fly drones? Why or why not? Ask students to support their opinions with details from the article.

ONLINE RESOURCES

- Visit www.scholastic.com/math to download a differentiated Common Core reproducible, plus five more inequality questions.
- Explore more uses for drones at: www.popsci.com/article/technology/25-reasons-love-drones?nopaging=1.

PAGE 6 • Probability

CAN YOU SPELL SELFIE?



STANDARD

Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring.

OBJECTIVE

Determine the probability of drawing particular Scrabble tiles based on tile distribution.

LESSON

- 1 Open your digital issue at www.scholastic.com/math to page 6. Have students read silently about Scrabble's dictionary update. When they are finished, ask why young players might have a new advantage when playing Scrabble. (*Kids are more familiar with the slang and technology-based words that have been added to the dictionary.*)
- 2  Enlarge the "Calculating Probability" box on page 7 and read the definition of *probability* aloud. Walk students through the example using a six-sided die. As a class, list all possible rolls on the die, and count the total. (*six*) Then identify the number of possibilities of rolling either a 2 or 3. (*two*) Reiterate that 2 is the number of favorable outcomes and 6 is the total number of possible outcomes. This means that the probability of rolling a 2 or 3 is $\frac{2}{6}$. Review simplifying fractions to get the final answer: $\frac{1}{3}$.
- 3  Click on the video button on page 7 to watch a brief instructional video. Then have students work on the questions individually.

S.T.E.M. CONNECTION

- As a class, collect and compile experimental data from multiple draws of real Scrabble tiles. Does the experiment suggest that students' probability calculations were correct?

ONLINE RESOURCES

- Visit www.scholastic.com/math to download a differentiated Common Core reproducible and five more probability questions, and to watch an instructional video about probability.
- Check the Scrabble dictionary for your favorite words at: www.hasbro.com/scrabble-2/en_US/search.cfm.

GOING THE DISTANCE

STANDARD

Understand ratio concepts and use ratio reasoning to solve problems.

OBJECTIVE

Set up ratios to find the unit rates at which lunar and Mars rovers travel.

LESSON

1 This issue's cover story is about NASA's record-setting Mars rover, *Opportunity*. On page 8 of your digital issue at www.scholastic.com/math, click on the video button to watch a background video about *Opportunity* and its sister rover, *Spirit*. Then have students take turns reading the article aloud.

2 Ask: How did NASA's scientists ensure that *Opportunity* would function on Mars for such a long time? (*They equipped it with solar panels that produce the electricity needed to power motors, turn wheels, and lubricate gears so they don't get stuck; they instructed it to drive backward to rest its worn-down parts.*)

3 On page 11, use the mask tool to hide everything except the infographic. Ask students:

- What is this infographic showing us? (*the different driving distances of Mars and lunar rovers*)
- What are its units of measurement? (*miles*)
- Which rovers have traveled the least distance? (*Sojourner, Yutu*)

4 Enlarge the "Finding Unit Rates" box on page 11. Walk students through the example. Then complete the first four questions as a class.

5 Have students use arithmetic calculations, rate tables, or proportions to solve the remaining problems. Encourage students who are comfortable with unit rate calculations to support their answers with more than one method.

S.T.E.M. CONNECTION

→ Why is the existence of minerals on Mars so interesting to scientists? (*Minerals require water to form, which suggests that Mars once had water on its surface—a condition thought to be needed to sustain life.*)

ONLINE RESOURCES

- Visit www.scholastic.com/math to download a differentiated Common Core reproducible, plus five more unit rate questions.
- Watch a video of the landscapes that *Opportunity* has encountered at: www.space.com/26666-mars-rover-opportunity-distance-record.html.
- Learn more about the Mars rovers at: <http://mars.jpl.nasa.gov/mer/home>.

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DIGITAL ISSUE KEY:



PAGE 12 • Statistics

FIST-BUMP TO FIGHT GERMS


STANDARD

Develop understanding of statistical variability.

OBJECTIVE

Analyze data to draw conclusions about the flu and the common cold, and how germs spread.

LESSON

- 1 This article is about types of contact that spread germs. Ask students: What can you do to avoid spreading germs during cold and flu season? (*Cover your mouth and nose when you cough or sneeze; wash your hands frequently.*)
- 2 Go to www.scholastic.com/math and open your digital issue to page 12. Have students read the article silently in their own issues.
- 3  Enlarge the “Positive Test Results” line graph on page 13. Have students review the graph’s components, including the title, key, and x- and y-axes. Ask: What does each line on this graph represent? (*weekly positive test results during one flu season*) Why is a line graph the best way to display this information? (*It can show data over time for multiple years, which lets you compare positive flu test results by year.*) You may want to review the other types of displays pictured and discuss why each is suited to the data it features.
- 4 Call on volunteers to answer the questions on page 13. Have students explain how they knew which graph or chart to use to find their answers.

S.T.E.M. CONNECTIONS

- Work in groups to create a brochure explaining how to prevent the spread of cold and flu viruses. Students should include statistics from the article as well as additional research on preventative measures.

ONLINE RESOURCES

- Visit www.scholastic.com/math to watch a background video about the article’s featured study.
- Watch an animation of the flu virus at: www.npr.org/blogs/krulwich/2011/06/01/114075029/flu-attack-how-a-virus-invades-your-body.

PAGE 14 • Area

WHAT A VIEW!



STANDARD

Solve mathematical problems involving the area of two-dimensional objects composed of triangles, quadrilaterals, and polygons.

OBJECTIVE

Find surface areas of irregular viewing platforms by decomposing them into regular shapes.

LESSON

- 1 At www.scholastic.com/math, open your digital issue to page 14. Click on the blue “Web Links” button to access an interactive map. Zoom in to show students the locations they’ll read about in “What a View!”: Auckland, New Zealand; Arizona; and Cornwall, England (near Plymouth). Then have students read the article silently.
- 2  Enlarge the “Area of Irregular Figures” box on page 15 and read the first paragraph aloud. Direct students’ attention to the shape pictured. Ask: How could you break this shape into smaller regular shapes? (*You can decompose it into one half-circle and one rectangle.*) Walk students through steps 1-3.
- 3  Direct students’ attention to the diagram under question 1. Explain that they can find the area of the blue circle by subtracting the area of the inner white circle from the larger circle’s total area. Work through questions 1-3 as a class.

COMMON CORE CRITICAL THINKING

- In small groups, students should find and research a location that they consider beautiful enough to merit its own skywalk. Have each group create and present a proposal on why their location deserves a skywalk. Vote to determine which proposal is the strongest.

ONLINE RESOURCES

- Visit www.scholastic.com/math to download a differentiated Common Core reproducible, plus five more area questions.
- Find Auckland, Arizona, and Cornwall on an interactive map at: <http://mapmaker.education.nationalgeographic.com>.
- See more photos of Auckland’s SkyWalk at: <http://skywalk.co.nz/gallery/skywalk>.

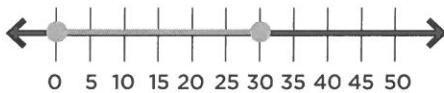
ISSUE SKILLS REVIEW

For use with the December 8, 2014, issue of Scholastic *MATH* magazine.

FILL IN THE CORRECT ANSWER ON THE LINE.

1 An Omcopter drone can fly in wind speeds of up to 45 kilometers per hour. Express this as an inequality where w represents the wind speeds that the Omcopter can withstand.

2 The graph on the number line below represents the total number of minutes that a Flying-Cam 3.0 SARAH drone can fly before recharging. Express this relationship as an inequality.

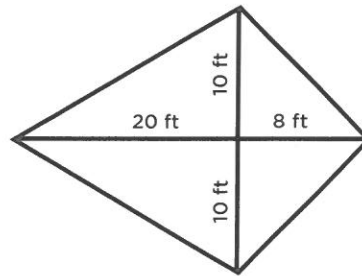


3 In a bag of 100 Scrabble tiles, there are just 2 tiles worth 10 points each. What is the probability of drawing a 10-point tile from a full bag?

4 In the same bag of 100 Scrabble tiles, there are 68 tiles worth 1 point each, and 2 tiles worth 0 points each. What is the probability of drawing a tile worth 2 or more points from a full bag?

5 In the 10 years since the *Opportunity* rover landed on Mars, it has traveled a distance of about 40 kilometers. Approximately how many kilometers has *Opportunity* traveled per month? Round your answer to the nearest hundredth.

6 The Mars rover *Curiosity* has traveled about 8.6 kilometers in its 2 years on Mars. Is *Curiosity*'s rate of travel per month higher or lower than *Opportunity*'s?



7 The Top of Tyrol viewing platform in Austria is a roughly diamond-shaped structure that extends over the Stubai Alps. What composite shapes can you identify in the diagram of the platform above?

8 Use the dimensions marked on the image above to find the total area of the platform.

9 $5 \times -3 =$

10 $-24 \div 8 =$

Problem of the Day

NAME _____

TRY ONE OF THESE QUICK EXERCISES EACH DAY AS A FAST, FUN WAY TO START YOUR MATH LESSON!

<p>DAY 1</p> <p>A drone's maximum speed is 60 miles per hour. Express this as an inequality where s represents the drone's speed.</p>	<p>DAY 2</p> <p>Will the solution to the following expression be negative or positive? $-25 \times \frac{1}{5}$</p>	<p>DAY 3</p> <p>Solve for x: $\frac{3x}{2} = 9$</p>	<p>DAY 4</p> <p>A bag of 100 Scrabble tiles contains 4 tiles worth 8 or more points each. What's the probability of drawing a tile worth 7 points or less?</p>	<p>DAY 5</p> <p>Express the mixed number $2\frac{5}{8}$ as an improper fraction.</p>
<p>DAY 6</p> <p>The first issue of the comic book <i>Batman</i> cost \$0.10 in 1940. In 2012, a copy sold for \$850,000. What was the percent increase in the price of this copy?</p>	<p>DAY 7</p> <p>A lunar rover travels at a rate of 0.25 kilometers per month. How far will it have traveled in a year?</p>	<p>DAY 8</p> <p>Solve the equation: $3 - x = 2$</p>	<p>DAY 9</p> <p>The average wombat weighs anywhere from 48 to 86 pounds. Express this range as an inequality where w represents average weight.</p>	<p>DAY 10</p> <p>Rewrite the following expression in exponential form: $10 \times 10 \times 10 \times 10 \times 10$</p>
<p>DAY 11</p> <p>An 8-by-8-foot square is connected to, but does not overlap, a 6-by-4-foot rectangle. What is the combined area of the two shapes?</p>	<p>DAY 12</p> <p>In which quadrant on a coordinate plane would the point $(-3, -3)$ appear? A. Quadrant I C. Quadrant III B. Quadrant II D. Quadrant IV</p>	<p>DAY 13</p> <p>What is the greatest common factor of the integers 6, 18, and 33?</p>	<p>DAY 14</p> <p>If a hand shake transmits 125 million bacteria, about $2\frac{1}{2}$ times as much as a high five, about how much bacteria does a high five transmit?</p>	<p>DAY 15</p> <p>The <i>Batika</i> icebreaker approaches ice at a 30° angle. What is this angle's supplement?</p>
<p>DAY 16</p> <p>If the Mars rover <i>Curiosity</i> travels a total of 3 miles over the next year, what will have been its rate of travel per month?</p>	<p>DAY 17</p> <p>Is the quotient of the following expression a repeating decimal? $9 \div 27$</p>	<p>DAY 18</p> <p>A bag contains 12 blue, 3 red, and 5 orange marbles. What is the probability of selecting either a red or an orange marble?</p>	<p>DAY 19</p> <p>Use the distributive property to expand the following expression: $2 \times (1 + r)$</p>	<p>DAY 20</p> <p>What is the area of a triangle with a base of 4 inches and a height of 16 inches?</p>

PAGES 2-3

NUMBERS IN THE NEWS

WORLD'S OLDEST WOMBAT

40 kilograms

BREAKING THE ICE

30°

HOT COMIC

3,207,851,900%

DO THE MATH!

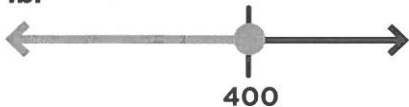
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PAGE 4

FILM TAKES FLIGHT

1a. $h \leq 400$

1b.



2a. $b > 60$

2b.



3a. $w > 28$

3b.



4a. $0 \leq s \leq 120$

4b.



5a. $0 \leq d \leq 300$

5b. The Omcopter can fly no more than 300 meters from its operator.

PAGE 6

CAN YOU SPELL SELFIE?

1. $\frac{3}{25}$

2. $\frac{2}{25}$

3. $\frac{21}{50}$

4. $\frac{4}{25}$

5a. $\frac{1}{10}$

5b. $\frac{1}{9}$

PAGE 8

GOING THE DISTANCE

1a. 127 months

1b. 0.2 miles per month

2. 4.8 miles per month

3. 5.8 miles per day

4. 5.6 miles per day

5. 22.2 miles

6. 0.1 miles per month

7. Faster

8. 110 feet per month

9. 6 miles

10. *Curiosity* had the fastest rate and *Sojourner* had the slowest. Unit rates allow you to compare the general travel rates and travel potential of different technologies.

However, these rates assume continuous movement and don't account for the amount of time spent exploring, which means they do not tell the whole story of rover exploration.

PAGE 12

FIST-BUMP TO FIGHT GERMS

1. C

2. B

3. C

4. D

5. C

6. C

7. About 12,500

8. Week 1

9. 2009-2010

10. No; positive flu test results vary too widely from year to year in the data pictured.

PAGE 14

WHAT A VIEW!

1a. 12,462.66 square feet

1b. 10,930.34 square feet

1c. 1,532.32 square feet

2a. 500 square feet

2b. 863.5 square feet

2c. 1,863.5 square feet

3. 456.73 square feet

BACK PAGE

ANNIE'S BACK!

1. B

2. A

3. A

4. A

5. B

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

TG PAGE 5

SKILLS REVIEW

- $0 \leq w \leq 45$
- $0 \leq m \leq 30$
- $\frac{1}{50}$
- $\frac{3}{10}$
- 0.33 kilometers per month
- Higher
- Triangles
- 280 square feet
- 15
- 3

TG PAGE 6

PROBLEM OF THE DAY

- $0 \leq s \leq 60$
- Negative
- $x = 6$
- $\frac{24}{25}$
- $\frac{21}{8}$
- 849,999,900%
- 3 kilometers
- $x = 1, x = 5$

- $48 \leq w \leq 86$
- 10^5
- 88 square feet
- C
- 3
- About 50 million
- 150°
- 0.25 miles per month
- Yes
- $\frac{2}{5}$
- $2 + 2r$
- 32 square inches

DATA ANALYSIS FOR GRADES 7-8. SCHOLASTIC.COM/UNEXPECTEDMATH

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