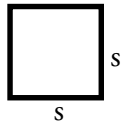




### Algebra Alley

Three times the area of a square is 129 square meters greater than eight less than twice the area of the square. Write an equation to represent this situation and find the dimensions of the square.



(5.03)



### What's The Problem?

\$5,000 is divided among four heirs so that each gets \$180 more than the next-younger heir. How much will the youngest get? Write an algebraic equation that will reflect this situation and solve it.

(5.03)



### Mathematically Speaking

Marty planted three flower gardens. The area of the rose garden is half the area of the geranium garden; the begonia garden is twice the area of the geranium garden. The begonia garden is 8 square meters. What is the total area of the three gardens?



(1.02)



### All About Data

1. Collect data from your classmates on
  - height in inches
  - shoe size
  - age
  - hand span\*
2. Make scatterplots using the information in ordered pairs.
3. Which pairs of data appear to have a relationship?



\*measure in inches from the thumb to the little finger of a spread hand

(4.01)



### Geometry Wrap Up

Eric drew two squares side by side. The perimeter of the resulting rectangle is 90 meters. What is the area of the rectangle?

(3.01)



# Keeping Skills Sharp

Write answers here:

1. Find the area of a rectangle whose length is 15 yards and whose width is 9 yards. 1. \_\_\_\_\_
2. Solve for r:  $21r \leq -378$ . 2. \_\_\_\_\_
3. Find the median: 6 12 8 36 10 3. \_\_\_\_\_
4. Write the expression and evaluate: seven cubed divided by seven squared. 4. \_\_\_\_\_
5. Find the GCF for 16 and 40. 5. \_\_\_\_\_
6.  $42 - 3.9$  6. \_\_\_\_\_
7. Give four positive multiples of 30. 7. \_\_\_\_\_
8. Write the fraction in simplest form:  $\frac{18}{126}$  8. \_\_\_\_\_
9. Which is greater:  $\frac{1}{4}$  or  $\frac{3}{11}$ ? 9. \_\_\_\_\_
10. Factor 124. 10. \_\_\_\_\_



# Mental Math

Directions to Students:  
Write your answers as the questions are called out. Each question will be repeated only once.

- |         |          |
|---------|----------|
| 1 _____ | 6 _____  |
| 2 _____ | 7 _____  |
| 3 _____ | 8 _____  |
| 4 _____ | 9 _____  |
| 5 _____ | 10 _____ |

# Answer Key

Grade 8

WEEK  
25

## What's the Problem?

\$980 Equation:  $x + (x + 180) + (x + 360) + (x + 540) = 5000$

$x$  = the amount the youngest will receive

## Mathematically Speaking

14 square meters

## All About Data

Answers will vary.

## Geometry Wrap Up

450 m<sup>2</sup>

## Algebra Alley

$3s^2 = 129 + (2s^2 - 8)$

11 m by 11 m

## Keeping Skills Sharp

- 135 square yards
- $r \leq -18$
- 10
- $\frac{7^3}{7^2} = 7$
- 8
- 38.1
- 30, 60, 90, 120
- $\frac{1}{7}$
- $\frac{3}{11}$
- $2^2 \cdot 31$

## Mental Math

This section provides an opportunity for sharpening students' mental computation.

- Write as a decimal: three hundred-fifty two and thirty-six thousandths.
- Evaluate  $2m^3$  if  $m = 5$ .
- $1^{100} =$
- Write  $11\frac{2}{3}$  as an improper fraction.
- Express as a unit rate: 20 miles in 4 hours
- Write the ratio as a percent: 33:100
- Simplify:  $6x + 3x + 2y$
- Name the first five whole numbers.
- True or false:  $0.6 = \frac{3}{5}$
- Give the coordinate of the point that is 6 units to the right of the  $y$ -axis and 4 units below the  $x$ -axis.

## Mental Math

- 352.036
- 250
- 1
- $\frac{35}{3}$
- 5 miles/hour
- 33%
- $9x + 2y$
- 0, 1, 2, 3, 4
- True
- (6, -4)



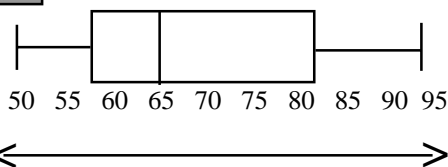
### Algebra Alley

The sum of the ages of the Smith's four children is 25. Maria's oldest brother is six times as old as she is. Her next-to-the-oldest brother is 5 years older than she is, and the youngest of her brothers is twice Maria's age. Write an equation to represent this situation and find the ages of the Smith's children?

(5.03)



### All About Data



This box plot describes Hal's math grades this semester. His sister's math grades are 56, 79, 87, 76, 94, 73, 92, 81, 77, and 84. Make a box plot for her grades.

How do their grades compare?

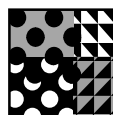
(4.01)



### What's The Problem?

A cylinder has a radius of  $\frac{1}{2}$  inch. How tall must it be if the volume is at least 15 cubic inches? Write an inequality to represent this situation and solve.

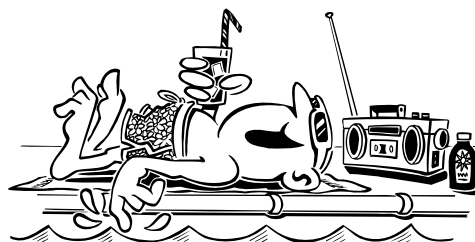
(5.03)



### Geometry Wrap Up

You have a circular swimming pool with a radius 6 meters and volume of about 533.8 cubic meters. Your neighbor has a circular pool with a diameter that is the same as the radius of your pool. The depth of the pools are the same. Find and compare the volumes.

You and your neighbor decide to drain the pools and paint the inside surfaces. If your neighbor needs three cans of paint for his pool, how many cans of paint will you need to paint your pool? Explain your solution.



(3.01, Review)



### Mathematically Speaking

Each of five friends has 20 baseball cards and they decide to trade cards as follows: Molly gives Jim one card, Kyle gives Bob one card, Molly gives Kyle two cards, Lisa gives Molly three cards, Lisa gives Bob five cards, Kyle gives Lisa one card, Molly gives Bob two cards, Bob gives Kyle one card, and Jim gives Bob three cards. Who has the greatest number of cards? Who has the least?

(1.02)



# Keeping Skills Sharp

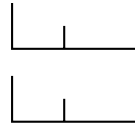
1. Solve for  $G$ :  $3(2G - 5) = 5 - 4G$

2. Order from least to greatest:  $0.6$ ,  $\sqrt{0.49}$ ,  $\frac{2}{3}$ ,  $6\%$

3. What is the measure of an angle in a regular pentagon?

4. Write the next 3 terms: 12, 19, 33, 61 ...

5. Is the bottom figure a rotation, translation, or reflection of the top figure?



6. Solve for  $b$ :  $b - 2\frac{3}{8} = 1\frac{1}{2}$

7. Express  $-2\frac{5}{6}$  as a fraction.

8.  $(2\frac{1}{4})(\frac{-4}{3})$

9. Solve for  $m$ :  $(\frac{5}{6})^2 \cdot 2 = m$

10. Evaluate  $(x + y)^2$  if  $x = -0.2$  and  $y = 0.02$

Write answers here:

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

6. \_\_\_\_\_

7. \_\_\_\_\_

8. \_\_\_\_\_

9. \_\_\_\_\_

10. \_\_\_\_\_



# Mental

# Math

Directions to Students:

Write your answers as the questions are called out. Each question will be repeated only once.

1 \_\_\_\_\_

6 \_\_\_\_\_

2 \_\_\_\_\_

7 \_\_\_\_\_

3 \_\_\_\_\_

8 \_\_\_\_\_

4 \_\_\_\_\_

9 \_\_\_\_\_

5 \_\_\_\_\_

10 \_\_\_\_\_

# Answer Key

Grade 8

WEEK  
26

## Algebra Alley

If  $m =$  Maria's age,  $6m + (5 + m) + 2m + m = 25$

Ages of Smith children: 2, 4, 7, 12

## What's the Problem?

at least 19.1 inches;  $\pi h(0.5)^2 \geq 15$ ;  $h =$  height

## Mathematically Speaking

Bob has the most (30), Lisa has the least (13)

## Geometry Wrap Up

The volume of the neighbor's pool is about 133 cubic meters. The surface that the neighbor paints is about 116.9 square meters. The surface area you will paint is about 290.3 square meters. You need 8 cans of paint.

## All About Data

Her 1st quartile, median, and 3rd quartile are higher than his.

## Keeping Skills Sharp

1.  $G = 2$
2. 6%, 0.6,  $\frac{2}{3}$ ,  $\sqrt{0.49}$
3.  $108^\circ$
4. 117, 229, 453
5. translation
6.  $3\frac{7}{8}$
7.  $-\frac{17}{6}$
8. -3
9.  $\frac{25}{18} = 1\frac{7}{18}$
10. 0.0324

## Mental Math

This section provides an opportunity for sharpening students' mental computation.

1. Simplify  $(2^2)^3$
2. Solve for  $x$ :  $x - 8 = -9$
3. Do the following ratios form a proportion?  $\frac{4}{7}$ ,  $\frac{20}{35}$
4. Simplify:  $2(3a + 7)$
5. In which quadrant are the  $x$ -coordinate negative and the  $y$ -coordinate positive?
6. How many hours are in a week?
7. Is the ordered pair  $(5, 0)$  a solution to  $6x + y = 30$ ?
8. What is the square of 0.05?
9. What is the value of  $x^2 - 4$  when  $x = 5$ ?
10. Double 6 lb 12 oz

## Mental Math

1. 64
2. -1
3. yes
4.  $6a + 14$
5. 2nd
6. 168 hours
7. yes
8. 0.0025
9. 21
10. 13 lb 8 oz



### Algebra Alley

Maddee graphed these lines. Identify the slope and intercepts for each.

$$3x + y = 18$$

$$2y - x = 10$$

(5.01c)



### What's The Problem?

At one point early this season Chipper Jones was batting 0.500. After getting 3 hits in 10 at-bats in his next 2 games, his average dropped to .333. How many hits and at-bats must he have altogether?



(1.02)



### Mathematically Speaking

One zip weighs as much as four zaps. Six zaps weigh as much as three zowwies. Five zowwies weigh as much as two swooshes. If one swoosh weighs one hundred pounds, how many pounds does one zip weigh?

(1.02)



### All About Data

#### Ages of 24 Night Class Students

2	3 5 5 8
3	0 1 2 2 4 4 4 4 5 6 6 7 8 8 9
4	0 1 3 3 8

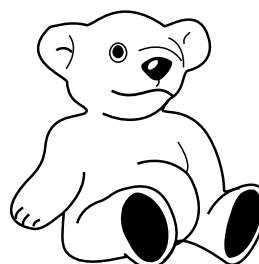
- Find mean, median and mode of the data set.
- Construct a box plot for the data.
- Give the range, minimum value, maximum value, lower quartile and upper quartile.
- What percent of the data is represented by the box in the box plot?

(4.01)



### Measurement Wrap Up

The Big Brown Teddy Bear Factory uses two similar patterns to produce 10"-tall bears and 30"-tall bears. If one bag of stuffing is needed to fill the entire volume of a 10"-tall bear, how many bags of stuffing will be needed to fill the volume of a similar 30"-tall bear?



From 1997-98 Mathcounts School Handbook

(2.01)



# Keeping Skills Sharp

1.  $-3 \cdot 5^2$  is ( $>$ ,  $<$  or  $=$ )  $(-3 \cdot 5)^2$

Write answers here:

2. Find the volume of a cylinder with a radius of 3 feet and a height of 7 feet.

1. \_\_\_\_\_

3. What are the prime factors of 72?

2. \_\_\_\_\_

4.  $\sqrt{324} \div \sqrt{9} =$

3. \_\_\_\_\_

5. Solve for  $k$ :  $\frac{k}{15} = -5$

4. \_\_\_\_\_

6. 10% of what number is 15 ?

5. \_\_\_\_\_

7.  $6\frac{2}{9} \div 2\frac{1}{3}$

6. \_\_\_\_\_

8. What is the reciprocal of  $4\frac{2}{3}$ ?

7. \_\_\_\_\_

9. Add: 3 gal + 2 qt + 1 gal + 6 qt

8. \_\_\_\_\_

10. Simplify;  $2(3a - 4b) - 6(2a + 5b)$

9. \_\_\_\_\_

10. \_\_\_\_\_



## Mental

## Math

Directions to Students:

Write your answers as the questions are called out. Each question will be repeated only once.

1 \_\_\_\_\_

6 \_\_\_\_\_

2 \_\_\_\_\_

7 \_\_\_\_\_

3 \_\_\_\_\_

8 \_\_\_\_\_

4 \_\_\_\_\_

9 \_\_\_\_\_

5 \_\_\_\_\_

10 \_\_\_\_\_

# Answer Key

Grade 8

WEEK  
27

## Algebra Alley

$3x + y = 18$ :  $y$ -intercept = 18,  $x$ -intercept = 6, slope = -3

$2y - x = 10$ :  $y$ -intercept = 5,  $x$ -intercept = -10, slope = 0.5

## What's the Problem?

$$\frac{4 \text{ hits}}{12 \text{ at - bats}} = .333$$

## Mathematically Speaking

80 pounds

## Measurement Wrap Up

27 bags

## All About Data

A. mean about 34.8, median = 34.5, mode = 34

C. range = 25, minimum value = 23, maximum value = 48,  
lower quartile = 31.5, upper quartile = 38.5

D. 50% Of the data

## Keeping Skills Sharp

1.  $<$
2. about 197.92 ft<sup>3</sup>
3. 2 and 3
4. 6
5.  $k = -75$
6. 150
7.  $2\frac{2}{3}$
8.  $\frac{3}{14}$
9. 6 gallons
10.  $-6a - 38b$

## Mental Math

This section provides an opportunity for sharpening students' mental computation.

1. What is the sum of the measures of the angles of a hexagon?
2. If one acute angle of a right triangle measures 52°, what are the measures of the other two angles?
3. True or False:  $0.2 + 0.4 = 0.06$
4.  $3:8 = 6$ : \_\_\_\_\_
5.  $-28 + 13$
6. Simplify:  $3w + 2w + 3x + 4x$
7.  $-32 \cdot -6$
8.  $\sqrt{64} \div 2 \cdot 4 =$
9. If  $a = 20$ , find the value of  $4a + 5$ .
10. What is the product of 2 and  $3x + 7$ ?

## Mental Math

1. 720°
2. 90° and 38°
3. False
4. 16
5. -15
6.  $5w + 7x$
7. 192
8. 16
9. 85
10.  $6x + 14$