



Algebra Alley

David has three times as many football cards as hockey cards, five times as many basketball cards as hockey cards and four times as many baseball cards as football cards. If he has a total of 420 cards, how many cards of each type does he have?

(5.03)



What's The Problem?

A month with five Wednesdays could begin on what day(s) ?

(1.02)



Mathematically Speaking

The Smith family will travel between 500 and 600 miles during their trip to the Outer Banks. Their van averages 25 miles per gallon of gasoline. If the cost of gasoline ranges from \$2.05 to \$2.17 per gallon, how much could they expect to spend on gasoline during their trip? Explain how you determined your answer.



(1.02)



All About Data

Write the title and label the horizontal and vertical axes for the following scatterplot. Be sure your answer is logical.

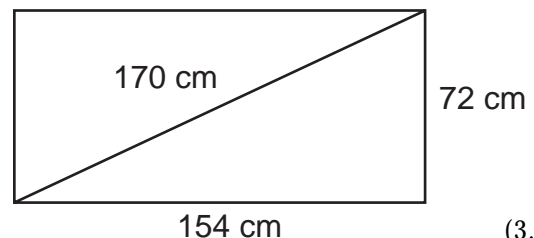


(4.01, 4.02)



Geometry Wrap Up

Tell how you could use the Pythagorean Theorem to determine whether this parallelogram is a rectangle.

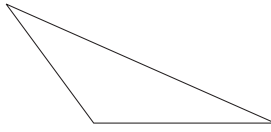


(3.02)



Keeping Skills Sharp

- Classify the following triangle as acute, obtuse or right.
- Solve for m : $19 - m = 5$
- Write a verbal phrase for the following algebraic expression:
 $2(x + 3)$
- Replace “ ? ” with $>$, $<$, or $=$: x^2 ? -4
- Rewrite $8 \cdot 6 + 8 \cdot 7$ using the distributive property.
- Solve for m : $\frac{m}{1.5} = -18.3$
- Determine the value of $(9 - n)$ if $n = -7$.
- Write sixteen billion in scientific notation.
- Write a^5 as a product of the same factor.
- Find the greatest common factor for 18, 30, and 42.



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
28

Algebra Alley

20 hockey, 60 football, 100 basketball, 240 baseball cards

What's the Problem?

Monday, Tuesday or Wednesday

Mathematically Speaking

Gas consumption is between 20 and 24 gallons. At the lowest price and for 500 miles, it will cost \$41.00. At the higher price and for 600 miles the cost is \$52.08. Explanations will vary.

Geometry Wrap-Up

If the square of the measure of the longest side of a triangle is equal to the sum of the squares of the measures of the other two sides, then the triangle is a right triangle.

Since $170^2 = 72^2 + 154^2$, both triangles are right triangles and the parallelogram is a rectangle.

All About Data

Answers will vary.

Keeping Skills Sharp

1. obtuse
2. $m = 14$
3. two times the sum of a number and three
4. $>$
5. $8(6 + 7)$
6. $m = -27.45$
7. 16
8. 1.6×10^{10}
9. $a \cdot a \cdot a \cdot a \cdot a$
10. 6

Mental Math

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

1. Write 10.25 as a fraction.
2. Solve for x : $x^2 = 16$
3. $6 \cdot 3 \div 9 - 1$
4. Find the range for the following numbers: 6, 36, 12, 18, 20, 14
5. Solve for x : $3x > -15$
6. Write the prime factorization of 24.
7. Will the product of $(-6) \cdot (-4) \cdot (4) \cdot (-6)$ be positive or negative?
8. Give the value of the expression, $5 - x$, when $x = -3$
9. What is the additive inverse of -10 ?
10. Write as an algebraic equation: Six less than a number is two.

Mental Math

1. $10\frac{1}{4}$
2. 4, -4
3. 1
4. 30
5. $x > -5$
6. $2^3 \cdot 3$
7. negative
8. 8
9. 10
10. $x - 6 = 2$



Algebra Alley

Make a table of values and graph each function. Is the function linear or nonlinear?

a) $y = x^2 + 3$

b) $f(x) = -3x + 5$

(5.01)



All About Data

Toss a coin 50 times. After each 5 tosses, record data in the table below. Graph the points. Does the set of points appear linear? What would you estimate the slope of the line to be? Why does this make sense?

Number of Tosses	Number of Heads
5	
10	
15	
20	
25	
30	
35	
40	
45	
50	

(4.02, 5.01c)



What's The Problem?

John has an aquarium that is 18" x 18" x 14".

Jane has a cylindrical aquarium. It has a diameter of 14" and is 14" high.

Which aquarium is larger and by how much?



(Review)



Mathematically Speaking

Write a short paragraph telling all you know about the function $f(x) = -2x + 7$

(5.01)



Geometry Wrap Up

A kite string is held at a point on the ground that is 120 feet from a point directly below the kite. The kite string (from kite to ground) is 150 feet long. How high is the kite?



(3.01, 2.02)



Keeping Skills Sharp

- | | |
|--|---------------------|
| 1. Simplify: $\frac{28}{52}$ | Write answers here: |
| 2. Solve for S : $53.72 - 2S = 46.627$ | 1. _____ |
| 3. Solve for R : $3\frac{5}{7} - \left(-1\frac{1}{7}\right) = 34R$ | 2. _____ |
| 4. Write the 8th term in the following sequence: 1, 2, 4, 8, 16, ... | 3. _____ |
| 5. How many square feet are in 3,528 square inches? | 4. _____ |
| 6. Express $2\frac{9}{16}$ as a decimal. | 5. _____ |
| 7. Evaluate: $12b^2$ if $b = \frac{-2}{3}$ | 6. _____ |
| 8. Complete the sequence: 2, 4, 6, 10, 16, _____, _____, _____ | 7. _____ |
| 9. Find the 8% tax on \$9.40. | 8. _____ |
| 10. $2.5 + (-3) \times 1.75 - 18 \div (-6) = ?$ | 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
29

Algebra Alley

Tables will vary. a) nonlinear, b) linear

Mathematically Speaking

Answers will vary.

All About Data

The points should cluster around a line with a slope of $\frac{1}{2}$. That is the probability of tossing heads.

Geometry Wrap-Up

90 feet

What's the Problem?

John's aquarium is larger by about 2,381 cubic inches.

Keeping Skills Sharp

- $\frac{7}{13}$
- 3.5465
- $\frac{1}{7}$
- 128
- 24.5 square feet
- 2.5625
- $5\frac{1}{3}$
- 26, 42, 68
- \$ 0.75
- 0.25

Mental Math

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

- What is the only even prime number?
- Write in standard form: 1.038×10^{-3} ?
- $(-3) \cdot (-4) \cdot (-3)$
- Solve for y: $\frac{3}{8} - \frac{5}{8} = y$.
- Find the area of a square with a side measuring 4 centimeters.
- 2.5 pounds = _____ ounces
- If $y = -1$, determine the value of $3y^3$.
- Write 1.23×10^{-2} in standard form.
- $(8^2 + 2) \div (15 - 2^2)$
- $12^0 = \underline{\hspace{2cm}}$

Mental Math

- 2
- 0.001038
- 36
- $y = \left(-\frac{1}{4}\right)$
- 16 cm²
- 40 ounces
- 3
- 0.0123
- 6
- 1



Algebra Alley

Triangle ABC is a right triangle with right angle at C . If the ratio of angle B to angle A is 7:11, write and solve an equation to find the measures of angles A and B .

(5.03)



All About Data

Comment on the following statement:
In July, 2005, over 91% of drivers had eaten bread or bread products within 12 hours of their involvement in an automobile accident.



(4.03)



What's The Problem?

The average of 5 numbers is 28. What would the 6th number have to be to bring the average up to 30?

Anna's average in math is 92. She wants to raise her average to 93 so she will make an A. She is taking a test on Friday. What score will she have to make on the test to raise her average to 93?



(1.02)



Mathematically Speaking

Bob had 37 hits in 46 times at bat during a Little League season. Sally had 23 hits in 31 times at bat. Who is the better hitter? Explain why.

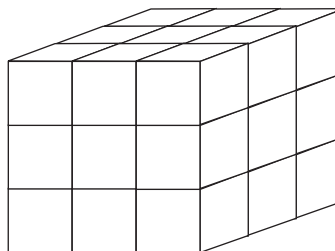
(1.02)



Geometry Wrap Up

Sugar cubes have been stacked to form one large cube. The outside of the cube has been colored with red food coloring.

1. How many individual sugar cubes are painted on *only* three sides?
2. How many individual sugar cubes are painted on all six sides?
3. How many individual sugar cubes are painted on no sides?
4. How many individual sugar cubes are painted on *exactly* two sides?



(3.01)



Keeping Skills Sharp

Write answers here:

1. Simplify:

$$3(a - 2) + 4(3 - a) - 10$$

1. _____

2. Solve for a : $\frac{a}{3.2} = 5$

2. _____

3. Find the perimeter of the rectangle: $l = 9.3$ meters, $w = 5.8$ meters

3. _____

4. Which of the following is a prime number: 6, 8, 9, 11, 12?

4. _____

5. What is $14\frac{5}{8} + 17\frac{9}{10}$ to the nearest whole number?

5. _____

6. Solve for r : $-3r + 18.5 = -4.9$

6. _____

7. $\frac{-2 + (-6) + (-7)}{-2} =$

7. _____

8. $2.5^4 = ?$

8. _____

9. If four computers are needed for every seven students, how many computers are needed for 280 students?

9. _____

10. Evaluate if $m = 5$, $x = 7$, and $y = 12$: $-4m + 3y - 2x$.

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

Algebra Alley

$$7x + 11x = 90$$

$$m\angle B = 35^\circ \quad m\angle A = 55^\circ$$

What's the Problem?

—
—
—
—
+ —

$$140 \quad 140 \div 5 = 28$$

$$6 \cdot 30 = 180 \quad 180 - 140 = 40 = \text{6th number}$$

There is not enough information to answer the part about Anna's average. You need to know how many tests she had taken before Friday's test.

Geometry Wrap-Up

- 8 cubes
- none
- 1 cube
- 12 cubes

Mathematically Speaking

Based on the given information, Bob has the higher percentage of hits (80.4%).

All About Data

Answers will vary.

Keeping Skills Sharp

- $-a - 4$
- 16
- $P = 30.2 \text{ m}$
- 11
- 33
- 7.8
- 7.5
- 39.0625
- 160
- 2

Mental Math

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

- $2^2 \times 2^3$
- Estimate $\$12.20 + \8.40 .
- Solve for x : $4x = 1$
- $\frac{1}{2} \times 4\frac{2}{5}$
- List the first three multiples of 12 greater than zero.
- In what quadrant is the ordered pair (3, -6)?
- Give the perimeter of a triangle with the sides measuring 6m, 3m, and 4m.
- $6.2 + 3.6$
- $-63 \div 7$
- 3.5 qts = _____ pints

Mental Math

- 32
- \$20.00
- $\frac{1}{4} = x$
- $2\frac{1}{5}$
- 12, 24, 36
- Quadrant IV
- 13 m
- 9.8
- 9
- 7