

Name

Answer Key

Date

6/7/17

Period

CC7 Math  
Final Review  
Packet

# What Is the Best Way To Become an Astronaut?



Choose the correct answer for each exercise and circle the number-letter pair next to it. Write the letter in the matching numbered box at the bottom of the page.

## Set 1. Simplify.

- a.  $12 + (5 - 9)$   $8$       d.  $(-5)(-4)(-18)$   $(-360)$   
 b.  $-7(-1 + 8)$   $-49$       e.  $16 - (-3 - 8)$   $27$   
 c.  $20 - (-3) + 15$       f.  $[-2 - (-9)] + 75$   
      $38$                                $82$

## Set 1 Answers

- 26 • S** 27      **19 • T** -420  
**23 • J** -45      **21 • E** 38  
**16 • D** 8      **9 • F** 92  
**14 • A** 82      **8 • C** -49  
**30 • B** 30      **5 • O** -360

## Set 2. Simplify.

- a.  $(-3 \cdot 4) + (-4 \cdot 3)$       d.  $100 - (-50) + (-25)$   
      $-12 + -12 = -24$                $125$   
 b.  $(21 - 30)(-12 + 1)$       e.  $(-30 - 30) \div (-5)$   
      $-9 \cdot -11 = 99$                    $12$   
 c.  $(-5)^3(-1)^{10}$       f.  $(-64 \div 8) + (-81 \div 9)$   
      $-125 \cdot 1 = -125$                $-8 + -9 = -17$

## Set 2 Answers

- 19 • A** 99      **2 • O** -125  
**30 • E** 12      **28 • I** 110  
**12 • T** -20      **23 • U** -24  
**18 • R** -9      **15 • N** -17  
**9 • H** 125      **24 • S** 15

## Set 3. Simplify.

- a.  $\frac{-13 + 5}{13 - 15} \cdot \frac{8}{-2} = 4$       d.  $\frac{-140}{14} + \frac{140}{-10}$   $-24$   
      $-10 + -14 = -24$   
 b.  $(-2)^4(-10)^2$   $1600$       e.  $5(-3)^3$   $-135$   
 c.  $\frac{(-8)(-8)}{-8 + (-8)} \cdot \frac{64}{-16} = -4$       f.  $\frac{-77}{-7} - \frac{99}{-99}$   
      $11 - -1 = 12$

## Set 3 Answers

- 4 • D** -30      **10 • O** 4  
**12 • L** -4      **24 • P** -135  
**18 • T** 12      **20 • V** -140  
**11 • R** 15      **28 • A** 1600  
**1 • G** -24      **29 • G** 2000

## Set 4. Evaluate if $a = -5$ , $b = -8$ , and $c = 2$ .

- a.  $abc$   $80$       d.  $2b - (-c)$   $-14$   
      $(-5)(-8)(2)$   
 b.  $3a - b$   $-7$       e.  $cb^2 + a$   $123$   
      $128 - 5 = 123$   
 c.  $\frac{-a^2 + 1}{4c}$   $-3$       f.  $\frac{(ac)^3}{5b}$   $25$   
      $\frac{-1000}{-40} = 25$

## Set 4 Answers

- 11 • O** -7      **6 • N** -20  
**20 • K** 123      **7 • S** -14  
**25 • E** 130      **27 • P** 25  
**4 • T** 80      **22 • R** -11  
**17 • I** -80      **29 • C** -3

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
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Name \_\_\_\_\_

Date \_\_\_\_\_

- Solve for x.
- Show all steps.
- Check your answer by substituting your solution back into the original equation

=====

### One Step Equations

$$\begin{array}{l} \textcircled{1} \quad X + 5 = 1 \\ \quad -5 \quad -5 \\ \hline X = -4 \end{array}$$

$$\begin{array}{l} \textcircled{2} \quad -8 + X = -8 \\ \quad +8 \quad +8 \\ \hline X = 0 \end{array}$$

$$\begin{array}{l} \textcircled{3} \quad 5X = 25 \\ \quad 5 \quad 5 \\ \hline X = 5 \end{array}$$

$$\begin{array}{l} \textcircled{4} \quad \frac{3}{4}X = 2 \\ \quad \frac{3}{4} \quad \frac{3}{4} \\ \hline X = \frac{8}{3} \end{array}$$

### Two Step Equations

$$\begin{array}{l} \textcircled{5} \quad 3X - 30 = 3 \\ \quad +3 \quad +30 \\ \hline 3X = 33 \\ \quad 3 \quad 3 \\ \hline X = 11 \end{array}$$

$$\begin{array}{l} \textcircled{6} \quad \frac{1}{4}X + 20 = 10 \\ \quad \frac{1}{4}X = -10 \\ \quad X = -40 \end{array}$$

$$\begin{array}{l} 7) \quad 2(X + 3) = 8 \\ \quad 2x + 6 = 8 \\ \quad 2x = 2 \\ \quad x = 1 \end{array}$$

$$\begin{array}{l} 8) \quad -2(X - 5) = 3X \\ \quad -2x + 10 = 3x \\ \quad 10 = 5x \\ \quad 2 = x \end{array}$$

$$\begin{array}{l} 9) \quad 2(X + 3) = 6X + 3 \\ \quad 2x + 6 = 6x + 3 \\ \quad 3 = 4x \\ \quad \frac{3}{4} = x \end{array}$$

## Lesson 5.8 Solving Inequalities

Inequalities can be solved the same way that equations are solved.

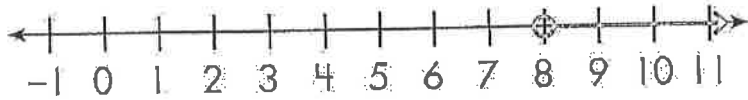
$$6 + q > 14$$

1. Subtract 6 from both sides of the inequality to isolate the variable on one side of the inequality.

$$6 + q - 6 > 14 - 6$$

$$q > 8$$

2. The variable  $q$  represents a value that is greater than 8.



A number line can be used to represent the possible values of the variable. An open circle shows that the values do not include 8. For inequalities that use  $\leq$  or  $\geq$ , a closed circle indicates that the values do include that point.

Solve the inequalities and represent the possible values of the variable on a number line.

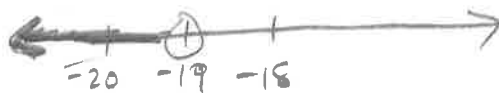
1.  $6 > z - 2$

$$8 > z$$



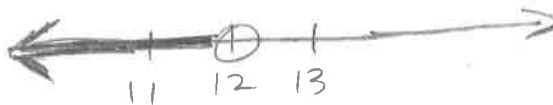
2.  $g + 7 < -12$

$$g < -19$$



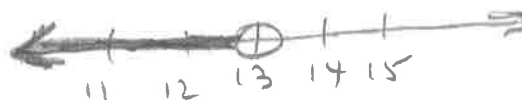
3.  $d - 5 < 7$

$$d < 12$$



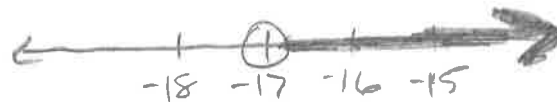
4.  $15 > k + 2$

$$13 > k$$



5.  $1 + x > -16$

$$x > -17$$



6.  $y + 8 < -9$

$$y < -17$$



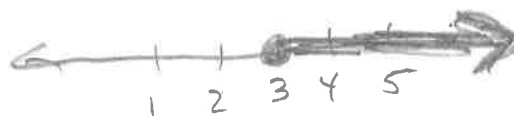
7.  $8 \leq 8 + r$

$$0 \leq r$$



8.  $w + 8 \geq 11$

$$w \geq 3$$



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### Lesson 3.5 Using Variables to Express Inequalities

An **inequality** is a mathematical sentence that states that two expressions are not equal.

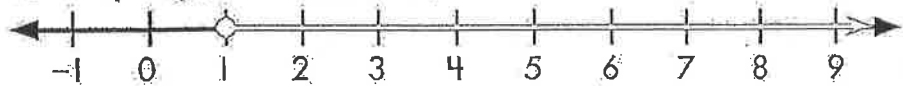
$$2 \times 5 > 6$$

Inequalities can be solved the same way as you solve equations.

$$-4 \times x \geq -4$$

$$-4 \times x \div (-4) \geq -4 \div (-4)$$

$$x \geq 1$$

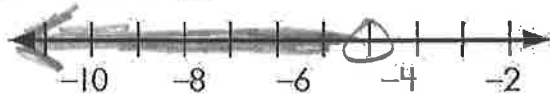


Solve each inequality and graph its solution.

a

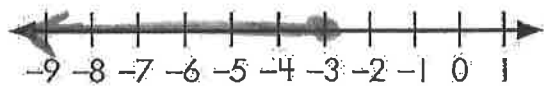
b

1.  $-4 \times m > 20$



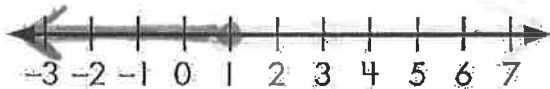
$$m < -5$$

$$v \leq -\frac{3}{5}$$



$$v \leq -3$$

2.  $15 \times x \leq 15$



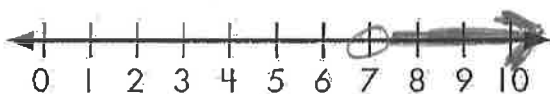
$$x \leq 1$$

$h \div 6 < -12$



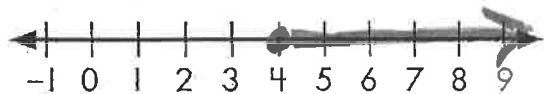
$$h < -72$$

3.  $-10a < -70$



$$a > 7$$

$n \div 2 \geq 2$



$$n \geq 4$$

## Lesson 3.5 Using Variables to Express Inequalities

Word problems can be solved by creating inequality statements.

Aria has \$55 to spend on flowers. She wants to buy two rose bushes, which will cost \$20, and spend the rest of her money on lilies. Each lily costs \$10. Write an inequality to show how many lilies Aria can buy.

Let  $l$  represent the number of lilies she can buy.

$$\text{Inequality: } \$10 \times l + \$20 \leq \$55$$

$$\$10 \times l + \$20 - \$20 \leq \$55 - \$20$$

$$\$10 \times l \div \$10 \leq \$35 \div \$10$$

$$l \leq 3.5$$

Aria can buy 3 lilies.

### SHOW YOUR WORK

Solve each problem by creating an inequality.

1. Andrew had \$20 to spend at the fair. If he paid \$5 to get into the fair, and rides cost \$2 each, what is the maximum number of rides he could go on?

Let  $r$  represent the number of rides.

$$\text{Inequality: } 20 \geq 5 + 2r$$

Andrew could go on 7 rides.

2. Sandra has \$75 to spend on a new outfit. She finds a sweater that costs twice as much as the skirt. What is the most the skirt can cost?

Let  $s$  represent the cost of the skirt.

$$\text{Inequality: } 75 \geq 3s$$

The most the skirt can cost is \$25.

3. Alan earns \$7.50 per hour at his after-school jobs. He is saving money to buy a skateboard that costs \$120. How many hours will he have to work to earn enough money for the skateboard?

Let  $h$  represent the number of hours Alan will have to work.

$$\text{Inequality: } 120 \leq 7.5h$$

Alan will have to work 16 hours.

1.

2.

$$75 \geq 3s$$

$$25 \geq s$$

3.

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## Lesson 7.3 Calculating Probability

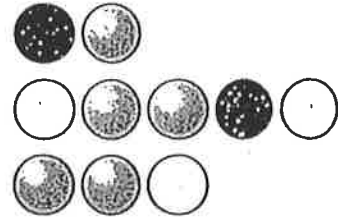
Determine the probability for each of the following events. Write answers as fractions in simplest form.

1. drawing a gray marble  $\frac{1}{2}$

2. drawing a white marble  $\frac{3}{10}$

3. drawing a black marble  $\frac{1}{5}$

4. drawing either a gray or a black marble  $\frac{7}{10}$



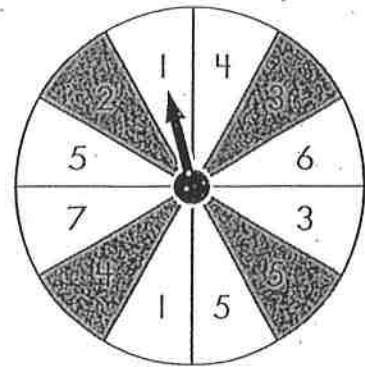
5. spinning a gray section  $\frac{1}{3}$

6. spinning a 4  $\frac{1}{6}$

7. spinning a 1  $\frac{1}{6}$

8. spinning either a 4 or 5  $\frac{5}{12}$

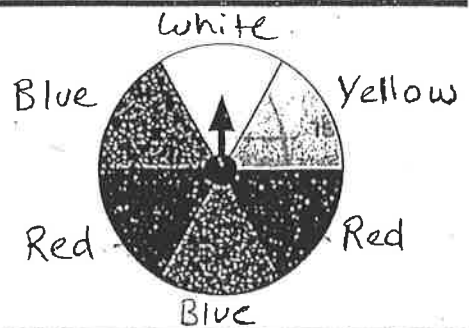
9. spinning an even number  $\frac{1}{3}$



10. spinning a red section  $\frac{1}{3}$

11. spinning a blue section  $\frac{1}{3}$

12. spinning a yellow section  $\frac{1}{6}$



A jar contains 25 pennies, 20 nickels, and 15 dimes. If someone picks one coin without looking, what are the chances that they will pick the following:

13. penny  $\frac{5}{12}$

14. nickel  $\frac{1}{3}$

15. dime  $\frac{1}{4}$

$$\frac{25}{60} = \frac{5}{12}$$

$$\frac{15}{60} = \frac{1}{4}$$

# Lesson 7.7 Representing Compound Events

A **sample space** is a set of all possible outcomes (or possible results) for an activity or experiment. To determine the sample space, it is helpful to organize the possibilities using a list, chart, picture, or tree diagram.

Show the sample space for tossing a nickel, a dime, and a quarter.

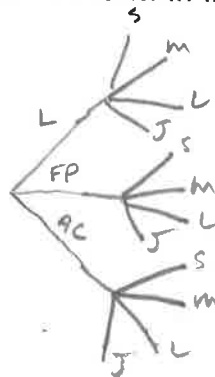
Nickel	Dime	Quarter	Possible Outcomes
Heads (H)	H	H	HHH
		T	HHT
	T	H	HTH
		T	HTT
Tails (T)	H	H	THH
		T	THT
	T	H	TTH
		T	TTT

There are 8 possible outcomes or possible results.

Make a tree diagram for each situation. Determine the number of possible outcomes.

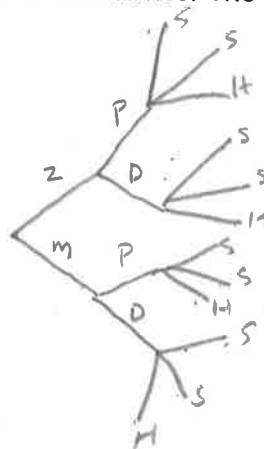
1. The concession stand offers the drink choices shown in the table.

Drinks	Sizes
Lemonade	Small
Fruit Punch	Medium
Apple Cider	Large
	Jumbo



There are 12 possible outcomes.

2. The Kellys are planning their vacation activities. The first day they can go to the zoo or the museum. The second day they can go to the pier or the dunes. The third day they have to choose sailing, swimming, or horseback riding.



There are 12 possible outcomes.



# Final Review: $A = \pi r^2$

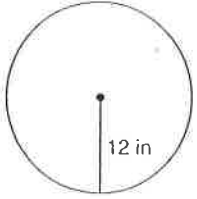
Name \_\_\_\_\_

## Circumference and Area of Circles

Date \_\_\_\_\_ Period \_\_\_\_\_

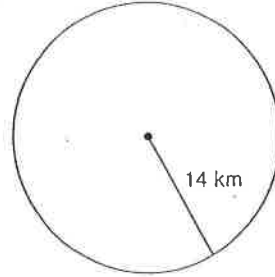
Find the area of each. Use your calculator's value of  $\pi$ . Round your answer to the nearest tenth.

1)



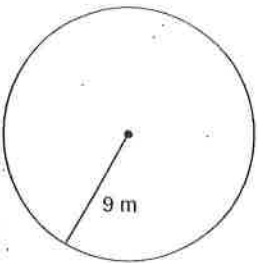
$$452.8 \text{ in}^2$$

2)



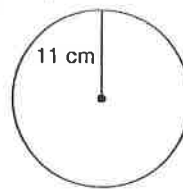
$$615.8 \text{ km}^2$$

3)



$$254.5 \text{ m}^2$$

4)



$$380.1 \text{ cm}^2$$

5) radius = 2.6 in

$$21.2 \text{ in}^2$$

6) radius = 34.1 in

$$3,653.1 \text{ in}^2$$

7) radius = 13.2 km

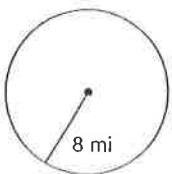
$$547.4 \text{ km}^2$$

8) radius = 29.9 km

$$2808.6 \text{ km}^2$$

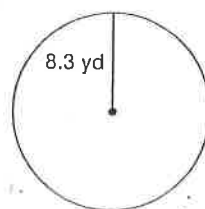
Find the circumference of each circle. Use your calculator's value of  $\pi$ . Round your answer to the nearest tenth.

9)



$$50.3 \text{ mi}$$

10)



$$52.2 \text{ yd}$$

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

GEOMETRY  
CCSS 7.G.4

Diameter

### Considering Pizza Costs

Paisano's Pizza Parlor has just opened up across the street from Mei's apartment. Mei is thinking about inviting some friends over for pizza and ordering from Paisano's. She wants to get the most pizza for her money. The menu shows the following prices:

6-inch round pizza.....	\$7.50	28.27
12-inch round pizza.....	\$12.00	113.10
18-inch round pizza.....	\$16.00	254.47

1. How many 6-inch pizzas have the same amount of pizza as one 12-inch pizza?

$$113.1 \div 28.27 \approx 4$$

4 pizzas

2. How many 6-inch pizzas have the same amount of pizza as one 18-inch pizza?

$$254.47 \div 28.27 \approx 9$$

9 pizzas



## Solve real-life and mathematical problems involving angle measure, area, surface area, and volume

### Circles (7.G.B.4)

- A circle is divided into 4 equal sections. What is the measure of each of the angles formed at the center of the circle?  
 (A)  $25^\circ$   
 (B)  $180^\circ$   
 (C)  $90^\circ$   
 (D)  $360^\circ$
- What is the area of a circle with diameter 8 cm? Round your answer to the nearest tenth.  
 (A)  $201.1 \text{ cm}^2$   
 (B)  $201.0 \text{ cm}^2$   
 (C)  $50.2 \text{ cm}^2$  *50.3 cm<sup>2</sup>*  
 (D)  $25.1 \text{ cm}^2$
- What is the radius of a circle with a circumference of 125 cm? Round your answer to the nearest whole number.  
 (A) 24 cm  
 (B) 10 cm  
 (C) 20 cm  
 (D) 19 cm *19.89*
- What is the circumference of a circle with radius 0.5 feet? Round your answer to the nearest tenth.  
 (A) 3.1 ft *3.14*  
 (B) 3.2 ft  
 (C) 0.8 ft  
 (D) 0.7 ft
- Which of the following could constitute the area of a circle?  
 (A) 50 units  
 (B) 1 square unit  
 (C) 1.5 cubic units  
 (D) One half of a unit

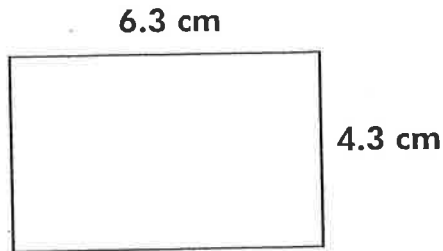


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## Finding Area, Volume, & Surface Area (7.G.B.6)

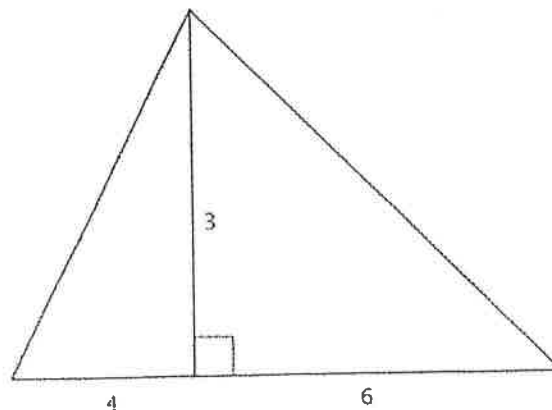
1. Find the area of the rectangle shown below.



2. What is the volume of a cube whose sides measure 8 inches?

- (A)  $24 \text{ in}^3$
- (B)  $64 \text{ in}^3$
- (C)  $128 \text{ in}^3$
- (D)  $512 \text{ in}^3$

3. Calculate the area of the following polygon.



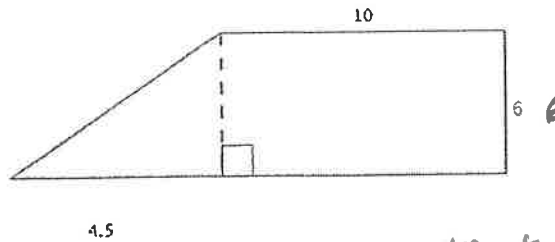
- (A) 15 square units
- (B) 30 square units
- (C) 36 square units
- (D) 18 square units

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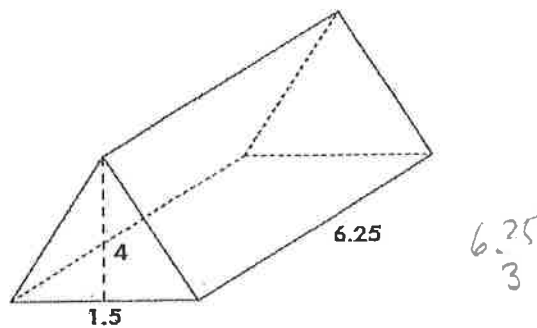
4. Calculate the area of the following polygon.



$$60 + 13.5 = 73.5$$

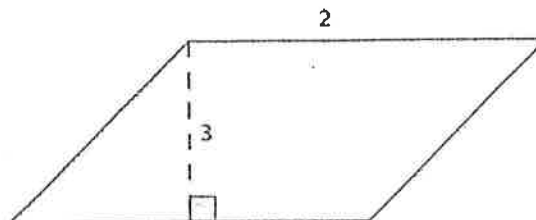
- (A) 60 square units
- (B) 73.5 square units
- (C) 13.5 square units
- (D) 24 square units

5. What is the volume of the following triangular prism?



- (A) 11.75 cubic units
- (B) 20 cubic units
- (C) 37.5 cubic units
- (D) 18.75 cubic units

6. What is the volume of a prism with the following base and a height of 2.75?



- (A) 8.25 cubic units
- (B) 13.75 cubic units
- (C) 16.5 cubic units
- (D) 8.75 cubic units



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7. What is the surface area of a cube with sides of length 2?

- A 16 square units
- B 8 square units
- C 24 square units
- D 18 square units

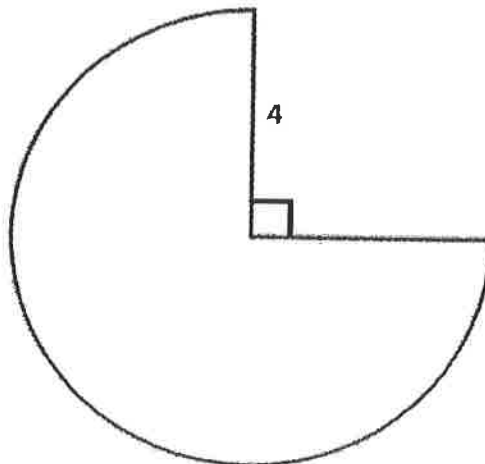
8. What is the surface area of a rectangular prism with dimensions 2,  $\frac{1}{2}$ , and  $\frac{1}{4}$ ?

- A 2
- B  $\frac{13}{4}$
- C  $\frac{9}{4}$
- D  $\frac{3}{2}$



$$\begin{aligned}
 1 \times 2 &= 2 \\
 \frac{1}{8} \times 2 &= \frac{1}{4} \\
 \frac{1}{2} \times 2 &= 1
 \end{aligned}
 \quad 3\frac{1}{4}$$

9. Find the area of the shape below. (Round to the nearest tenth). Use  $\pi = 3.14$ .



$$\frac{3}{4} (4^2) \pi \approx 37.7$$

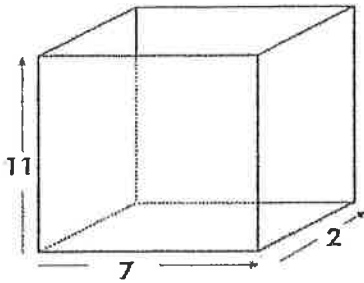
- A 37.7 square units
- B 50.2 square units
- C 18.8 square units
- D 35.2 square units

Name: \_\_\_\_\_

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10. John has a container with a volume of 170 cubic feet filled with sand. He wants to transfer his sand into the new container shown below so he can store more sand. After he transfers the sand, how much more sand can he add to the new container?



154

- A 16 cubic feet of sand
- B 26 cubic feet of sand
- C 150 cubic feet of sand
- D 324 cubic feet of sand

# End of Geometry



Name: \_\_\_\_\_

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## Solving Multi-Step Problems (7.EE.B.4.A)

1. Bob, the plumber, charges  $\frac{1}{4}$  the cost of materials as his labor fee. If his current job has a material cost of \$130, how much will Bob charge his client (including his labor fee)?

- (A) \$162.50
- (B) \$32.50
- (C) \$130.25
- (D) None of the above

$$130 \div 4 = 32.5$$

$$130 + 32.5 = 162.50$$

2. A box has a length of  $6x$  inches. The width equals one third the length, and the height equals half the length. If the volume equals 972 cubic inches, what does  $x$  equal?

- (A) 5
- (B) 2
- (C) 3
- (D) 4

$$(6x)(2x)(3x) = 972$$

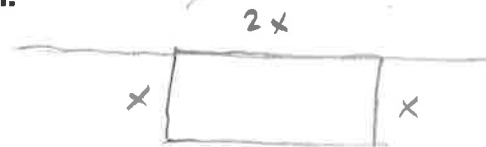
$$36x^3 = 972$$

$$x^3 = 27$$

$$x = 3$$

3. Taylor is trimming the shrubbery along three sides of his backyard. Their backyard is rectangular in shape, and the shrubbery lines one length and two widths of that rectangle. The length is twice the width and the total perimeter of the backyard is 180 feet. Find the length of the shrubbery that Taylor has to trim.

- (A) 180 ft
- (B) 60 ft
- (C) 90 ft
- (D) 120 ft



$$6x = 180$$

$$x = 30$$

4. Jim is 4 years older than his brother Bob. In two years, Jim will be twice Bob's age. How old are they now?

- (A) Bob is 6 and Jim is 10.
- (B) Bob is 4 and Jim is 8.
- (C) Bob is 0 and Jim is 4.
- (D) Bob is 2 and Jim is 6.

$$J - 4 = B$$

$$J - 4 + 2 = B + 2$$



Name: \_\_\_\_\_

Date: \_\_\_\_\_



5. In a certain classroom, the ratio of boys to girls is 2 to 1. If there are 39 students in the classroom, how many are boys?

- (A) 18  
(B) 22  
(C) 26  
(D) 30

$$\begin{array}{r|l} 2 & 26 \\ \hline 1 & \\ \hline 3 & 39 \end{array}$$

6. John put three gallons of gasoline into his truck. The gasoline level was at 10% before he added the gasoline. If the truck has a 12 gallon tank, how much more gasoline can fit in the tank?

- (A) 7.8 gallons  
(B) 6.7 gallons  
(C) 8.9 gallons  
(D) 10.8 gallons

$$10\% + 25\% = 35\%$$

$$65\% \text{ of } 12 = 7.8$$

7. Melanie has \$35.00 in her savings account and is working at a neighbor's house cleaning for \$15.00 per week. Sue has no money saved, but is mowing lawns at \$20.00 each. If Sue mows 1 lawn per week, how long will it take her to catch up with Melanie?

- (A) 5 weeks  
(B) 6 weeks  
(C) 7 weeks  
(D) 8 weeks

$$35 + 15x = 20x$$

$$35 = 5x$$

$$7 = x$$

8. Sissy is baking cookies for her class party. She plans to bake 128 cookies. Her recipe makes 6 dozen cookies. If her recipe calls for  $3\frac{1}{2}$  c flour, how much flour will she need to make 128 cookies (round to the nearest half cup)?

- (A)  $5\frac{1}{2}$  c  
(B) 4 c  
(C)  $4\frac{1}{2}$  c  
(D) 6 c

$$6 \times 12 = 72$$

$$128 \div 72 = 1\frac{7}{9}$$

$$1\frac{7}{9} \times \frac{16}{9} = 1\frac{8}{9} = \frac{56}{9}$$

9. Jenn went to the farmer's market with \$40.00. She bought a 10-lb bag of potatoes for \$6.00, a pie for \$8.00, 4 qt fresh blueberries for \$4.00 per qt, and 5 lb of apples at \$1.49 per lb. What percent of the \$40.00 did she still have when she left?

- (A) 93.625%  
(B) 6.375%  
(C) 25%  
(D) .0595%

$$\begin{array}{r} 6.00 \\ 8.00 \\ 16.00 \\ 7.45 \\ \hline 37.45 \end{array}$$

$$\begin{array}{r} 40.00 \\ -37.45 \\ \hline 2.55 \end{array}$$

$$\frac{2.55}{40} = .06375$$

