

**Incoming 8th Grade Summer Assignment**

1. A mail service drop box is 4 feet tall. The drop box casts a shadow that is 6 feet long. At the same time, the post office building casts a shadow that is 54 feet long. What is the height of the post office?

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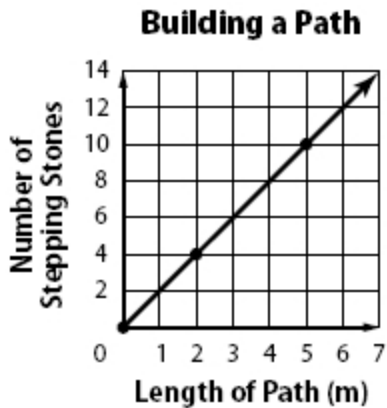
**Write two inequalities using the number pair. Use the symbols < or >.**

2. -1 and 0

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**Use the graph.**



3. Find the constant rate of change for the linear function and interpret its meaning.

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**Solve each inequality. Check your solution.**

4.  $g + 0.8 \leq -3.2$

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**Incoming 8th Grade Summer Assignment**

**Find each sum or difference.**

5.  $13 + (-2) + (-9)$

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**Add or subtract. Use models if needed.**

6.  $(4x - 3) + (-3x + 1)$

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**Solve each problem.**

7. An LCD television is on sale for \$500. This price is 75% of its original price. What was the original price of the television?

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**Use the percent proportion or percent equation to solve each problem.**

8. What is 15% of 28?

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**Translate each phrase into a numerical or algebraic expression.**

9. 15 more adults than children

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**Write two inequalities using the number pair. Use the symbols  $<$  or  $>$ .**

10. 7 and  $-5$

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**Incoming 8th Grade Summer Assignment**

**Evaluate each expression.**

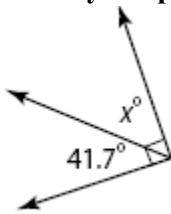
11.  $5 \cdot 2 - 6$

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**Classify the pair of angles shown. Then find the value of  $x$  in each figure.**

12.



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**Evaluate each expression if  $a = -3$ ,  $b = 6$ , and  $c = -9$ .**

13.  $|ab| \div |c|$

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**Replace each  $\bullet$  with  $<$ ,  $>$ , or  $=$  to make a true sentence.**

14.  $1\frac{2}{3} \bullet 1\frac{5}{7}$

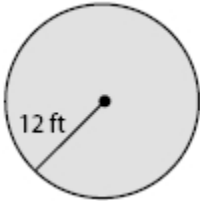
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**Incoming 8th Grade Summer Assignment**

**Find the circumference and area of each circle. Round to the nearest tenth.**

15.



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**Solve each equation. Check your solution.**

16.  $-2(x + 12) = 4$

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**Evaluate each expression if  $x = 2$ ,  $y = 10$ , and  $z = 5$ .**

17.  $y - 4$

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**Evaluate each expression. Express the result in scientific notation.**

18.  $(3.2 \times 10^{-4}) + (2.2 \times 10^{-5})$

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**Find the GCF of each pair of monomials.**

19.  $9x, 12x$

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**Incoming 8th Grade Summer Assignment**

**Use the percent proportion or percent equation to solve each problem.**

20. What fraction would you use to find  $33\frac{1}{3}\%$  of 51 mentally?

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**Write an inequality for each sentence.**

21. The cut from the circular saw must be less than 0.025 millimeter off the line.

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**Solve each problem by writing and solving an equation.**

22. An insurance company charges a \$25 initiation fee and \$87 per month for renters insurance. If you have spent \$547 to date, for how many months have you had renters' insurance?

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**Graph and label each point on the coordinate plane.**

23.  $C(2, 4)$

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**Find the GCF of each pair of monomials.**

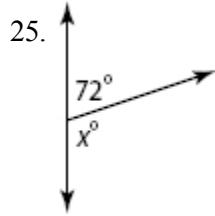
24.  $20b, 8b$

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**Incoming 8th Grade Summer Assignment**

**Classify the pair of angles shown. Then find the value of  $x$  in each figure.**



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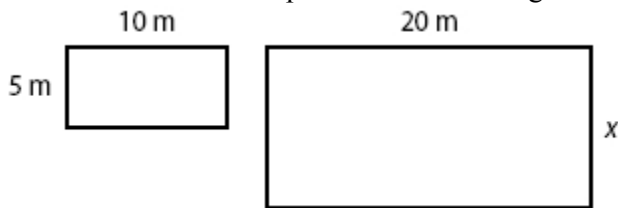
**Find each sum or difference.**

26.  $7 - 12$

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27. Find the value of  $x$  in the pair of similar rectangles.



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**Write each fraction as a decimal. Use a bar to show a repeating decimal.**

28.  $\frac{2}{7}$

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**Incoming 8th Grade Summer Assignment**

**Add or subtract. Use models if needed.**

29.  $(7x + 1) - (4x + 8)$

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**Name the property shown by each statement.**

30.  $15 \cdot 17 = 17 \cdot 15$

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**Solve each problem.**

31. Find the selling price if a store pays \$48 for a painting and the markup is 65%.

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**Use the following information. Triangle  $DEF$  has vertices  $D(4, 16)$ ,  $E(12, -12)$ , and  $F(4, -8)$ .**

32. What is true about the ratios of the side lengths of  $\triangle DEF$  and  $\triangle D'E'F'$  if  $\triangle D'E'F'$  is the result of a dilation with a scale factor of  $\frac{1}{2}$ ?

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**Determine whether each relation is a function. Explain.**

33.  $\{(7, 0), (9, 3), (11, 1), (13, 0)\}$

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**Incoming 8th Grade Summer Assignment**

**Graph each point on the coordinate plane. Name the quadrant in which each point is located.**

34.  $B(1, -3)$

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**Use the percent proportion or percent equation to solve each problem.**

35. Nine out of 43 campers at a summer camp prefer swimming more than any other activity. What percent of campers prefer swimming? Round your answer to the nearest tenth.

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36. Is  $\sqrt{25} + 12$  rational or irrational? Explain.

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**Express each ratio as a fraction in simplest form.**

37. 9 vans to 6 pick-up trucks

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**Find each product or quotient.**

38.  $7(-6)$

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**Add or subtract. Use models if needed.**

39.  $(x + 3) + (7x + 3)$

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**Incoming 8th Grade Summer Assignment**

Replace each ● with <, >, or = to make a true sentence.

40.  $-0.58 \bullet -\frac{1}{4}$

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Use the Distributive Property to write each expression as an equivalent algebraic expression.

41.  $6(s + 10)$

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42. A U.S. dollar bill remains in circulation about  $1\frac{1}{4}$  years. A U.S. coin is in circulation about  $22\frac{1}{2}$  times longer. About how long is a coin in circulation?

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Graph and label each point on the coordinate plane.

43.  $B(-1, 1)$

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Complete each conversion. Round to the nearest hundredth.

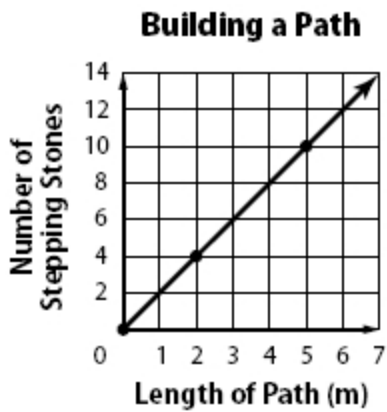
44.  $11 \text{ gal} \approx \underline{\hspace{2cm}} \text{ L}$

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**Incoming 8th Grade Summer Assignment**

Use the graph.



45. Determine whether the linear relationship is a direct variation. If so, state the constant of variation. Explain what it represents in this situation.

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**State the slope and y-intercept of the graph of each equation.**

46.  $4x + 3y = 6$

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47. Jhan bought an 8-ounce fruit drink for \$1.50. Write and solve a proportion that could be used to find the cost of a gallon of fruit drink. (*Hint: 1 gal = 128 oz*)

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**Evaluate each expression if  $x = 2$ ,  $y = 10$ , and  $z = 5$ .**

48.  $\frac{xy}{z}$

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**Incoming 8th Grade Summer Assignment**

Replace each ● with <, >, or = to make a true statement.

49.  $-\sqrt{30}$  ●  $-5\frac{1}{4}$

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Find the constant rate of change between the quantities in each table.

50.

<i>x</i>	6	7	8	9
<i>y</i>	1.50	1.75	2.00	2.25

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Add or subtract. Use models if needed.

51.  $(x + 2) - (-3x - 8)$

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Write each expression using exponents.

52.  $3 \cdot b \cdot b \cdot b \cdot b$

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Use the following information. Triangle *DEF* has vertices *D*(4, 16), *E*(12, -12), and *F*(4, -8).

53. What are the vertices of triangle *D'E'F'* after a dilation with a scale factor of  $\frac{1}{2}$ ?

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**Incoming 8th Grade Summer Assignment**

**Factor each expression. If the expression cannot be factored, write *cannot be factored*. Use algebra tiles if needed.**

54.  $5x + 12$

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55. A taxi cab company charges a \$2 fee plus \$1.10 for each mile driven. Complete the table. Determine whether the set of numbers in the table is proportional. If so, identify the constant of proportionality.

<b>Miles Driven</b>	1	2	3	4	5
<b>Cab Fare (\$)</b>	■	■	■	■	■

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**Solve each inequality. Check your solution.**

56.  $5(1 + 8w) < 10w + 25$

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**Find each sum or difference. Write in simplest form.**

57.  $\frac{3}{12} - \frac{5}{12}$

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**Incoming 8th Grade Summer Assignment**

**A hotel in Charleston, South Carolina has 110 rooms. The table shows the hotel occupancy for the first half of 2010 and 2011.**

Hotel Occupancy		
Month	2010	2011
January	64	68
February	46	51
March	72	78
April	80	77
May	84	89
June	92	96

58. Find the mean, median, and mode for the data in the table for 2010.

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**Find each square root or cube root.**

59.  $-\sqrt{400}$

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**State the slope and y-intercept of the graph of each equation.**

60.  $y = 3x - 1$

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**Write each expression using a positive exponent.**

61.  $4^{-5}$

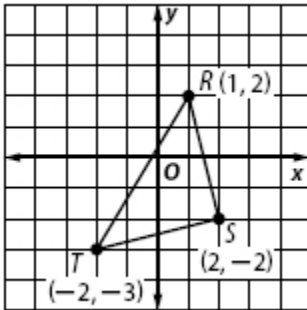
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**Incoming 8th Grade Summer Assignment**

**Refer to the coordinate plane.**



62. Find the coordinates of the vertices of the image of  $\triangle RST$  translated 2 units left and 3 units up.

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**Find the lateral and surface area of each solid. Round to the nearest tenth, if necessary.**

63. cylinder: diameter 3 ft, height 6 ft

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**Write each decimal as a fraction or mixed number in simplest form.**

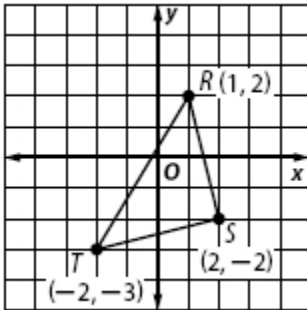
64. 0.38

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**Incoming 8th Grade Summer Assignment**

**Refer to the coordinate plane.**



65. Determine if  $\triangle RST$  and the image of  $\triangle RST$  translated 2 units left and 3 units up are congruent by using transformations. Explain your reasoning.

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**Find each product or quotient.**

66.  $-54 \div (-6)$

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**Solve each equation. Check your solution.**

67.  $0.2s = 10$

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**Solve each inequality. Check your solution.**

68.  $t - 6 > 7(t - 6)$

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**Incoming 8th Grade Summer Assignment**

**Use the Distributive Property to write each expression as an equivalent algebraic expression.**

69.  $11(m + 7)$

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**Factor each expression. If the expression cannot be factored, write *cannot be factored*. Use algebra tiles if needed.**

70.  $8 - 14x$

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**Solve each system of equations.**

71.  $y = x + 3$   
 $y = -1$

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**Name the property shown by each statement.**

72.  $8 + 0 = 8$

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**Express each number in standard form.**

73.  $7.49 \times 10^3$

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**Incoming 8th Grade Summer Assignment**

**A bowl contains 8 red apples, 4 green apples, and 8 yellow apples. Suppose one apple is selected at random. Express each probability as a fraction in simplest form.**

74.  $P(\text{red})$

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75. Find four solutions of the equation  $y = x + 7$ . Write the solutions as ordered pairs. Then graph the equation.

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**Use the Distributive Property to write each expression as an equivalent algebraic expression.**

76.  $-5(3 - b)$

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77. What is the sum of the measures of the interior angles of a heptagon?

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**Simplify each expression.**

78.  $10z + 6z - 11 + 7$

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**Factor each expression. If the expression cannot be factored, write *cannot be factored*. Use algebra tiles if needed.**

79.  $21x + 7$

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**Incoming 8th Grade Summer Assignment**

**Complete each conversion. Round to the nearest hundredth.**

80. 15 ft  $\approx$  \_\_\_\_\_ m

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**Evaluate each expression if  $a = 2\frac{1}{2}$ ,  $c = 6$ ,  $p = \frac{1}{3}$ , and  $r = \frac{5}{8}$ .**

81.  $r \div a$

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**Find the volume of each figure. Round to the nearest tenth.**

82. cylinder: radius 6.5 ft, height 9.6 ft

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**Identify each sample as *biased* or *unbiased* and describe its type.**

83. To determine the quality of LCD screens coming off an assembly line, every fifth LCD screen is checked.

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**Solve each system of equations.**

84.  $y = x + 4$   
 $y = -x + 2$

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**Incoming 8th Grade Summer Assignment**

**Solve each problem.**

85. Find the percent of change from  $24^{\circ}\text{F}$  to  $39^{\circ}\text{F}$ . Then state whether the percent of change is an *increase* or a *decrease*.

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**Write two inequalities using the number pair. Use the symbols  $<$  or  $>$ .**

86.  $-6$  and  $-8$

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**Solve each problem.**

87. Eli borrowed  $\$9500$  to buy a jet ski. He will pay  $\$218$  each month for the next 48 months. Find the simple interest rate for his loan, to the nearest tenth of a percent.

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**Solve each equation. Check your solution.**

88.  $10c + 4 = 16c - 8$

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**Evaluate each expression. Express the result in scientific notation.**

89.  $(6.2 \times 10^5) + (1.2 \times 10^6)$

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**Incoming 8th Grade Summer Assignment**

**Solve each equation. Check your solution.**

90.  $\frac{1}{6} = -\frac{2}{3}d$

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**Solve each problem.**

91. A computer mouse costs \$29. If a 6.25% sales tax is added, what is the total cost?

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**Graph each point on the coordinate plane. Name the quadrant in which each point is located.**

92.  $C(-2, -4)$

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**Solve each problem by writing and solving an equation.**

93. You return a DVD movie that was 5 days overdue. Including a previous unpaid balance of \$2.50, your new balance is \$7.75. How much is the daily fine for an overdue DVD?

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94. Ari kayaked  $2\frac{1}{4}$  miles in  $1\frac{1}{4}$  hours. What is his average speed in miles per hour?

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**Incoming 8th Grade Summer Assignment**

Evaluate each expression if  $a = 2\frac{1}{2}$ ,  $c = 6$ ,  $p = \frac{1}{3}$ , and  $r = \frac{5}{8}$ .

95.  $ac + p$

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**Find each product or quotient. Express using positive exponents.**

96.  $k \cdot k^6$

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**Use the Distributive Property to write each expression as an equivalent algebraic expression.**

97.  $9(a - 4)$

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**Express each number in standard form.**

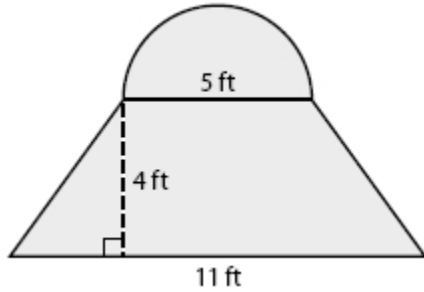
98.  $3.4 \times 10^{-5}$

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**Incoming 8th Grade Summer Assignment**

99. Meg designed a logo for a client. She made a prototype, as shown in the diagram. Find the area of the logo. Round to the nearest tenth.



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**Graph and label each point on the coordinate plane.**

100.  $A(-4, -2)$

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**Find each product or quotient.**

101.  $-30 \div 5$

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102. The inside of a cereal bowl is in the shape of a hemisphere (half of a sphere). The radius of the bowl is 2.25 inches. Find the volume of the bowl. Round to the nearest hundredth.

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**Incoming 8th Grade Summer Assignment**

**Solve each inequality. Check your solution.**

103.  $-9h \geq 63$

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**Use the percent proportion or percent equation to solve each problem.**

104. 30 is 40% of what number?

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**Write each fraction as a decimal. Use a bar to show a repeating decimal.**

105.  $-\frac{3}{25}$

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**Graph each point on the coordinate plane. Name the quadrant in which each point is located.**

106.  $A(-4, 3)$

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107. A model airplane is built with a wing span of 18 inches. The actual wing span is 72 feet. Find the scale.

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**Evaluate each expression if  $a = 2\frac{1}{2}$ ,  $c = 6$ ,  $p = \frac{1}{3}$ , and  $r = \frac{5}{8}$ .**

108.  $pr$

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**Incoming 8th Grade Summer Assignment**

**Translate each phrase into a numerical or algebraic expression.**

109. money earned tutoring at \$15 per hour

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**Find the constant rate of change between the quantities in each table.**

110.

$x$	6	12	18	24
$y$	10	20	30	40

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**Find each sum or difference.**

111.  $7 - (-5)$

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112. The sides of a square measure  $6x^3$  units. What is the area of the square?

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**Evaluate each expression.**

113.  $9 + 2(4)$

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**Incoming 8th Grade Summer Assignment**

**A bowl contains 8 red apples, 4 green apples, and 8 yellow apples. Suppose one apple is selected at random. Express each probability as a fraction in simplest form.**

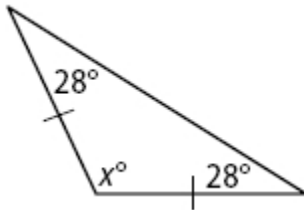
114.  $P(\text{red or green})$

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**Find the value of  $x$  in each triangle. Then classify each triangle by its angles and by its sides.**

115.



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**Use the percent proportion or percent equation to solve each problem.**

116. 16 is 25% of what number?

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**Write an inequality for each sentence.**

117. Darius listens to at least 16 songs on the bus.

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**Express each rate as a unit rate.**

118. \$75 for 5 DVDs

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**Incoming 8th Grade Summer Assignment**

**Write each expression using a positive exponent.**

119.  $x^{-6}$

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**Find each sum or difference.**

120.  $-4 + 11$

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**Find each sum or difference. Write in simplest form.**

121.  $-\frac{3}{7} + \frac{5}{14}$

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**A hotel in Charleston, South Carolina has 110 rooms. The table shows the hotel occupancy for the first half of 2010 and 2011.**

Hotel Occupancy		
Month	2010	2011
January	64	68
February	46	51
March	72	78
April	80	77
May	84	89
June	92	96

122. Find the measures of variability of the data in the table for 2010.

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**Incoming 8th Grade Summer Assignment**

**Solve each problem.**

123. Manuel purchases a suit for \$130. Sales tax is 7% on all purchases. How much sales tax does Manuel pay?

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**Replace each ● with <, >, or = to make a true statement.**

124.  $\sqrt{36}$  ●  $6.\overline{33}$

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**Write each decimal as a fraction or mixed number in simplest form.**

125.  $-5.\overline{5}$

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**Write each expression using exponents.**

126.  $(-4)(-4)(-4)$

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**Find each square root or cube root.**

127.  $\sqrt[3]{1331}$

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**Incoming 8th Grade Summer Assignment**

128. Find the number of possible outcomes for a choice of bologna, salami, or ham deli meat and rye, wheat, sourdough, or white bread.

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**Simplify each expression.**

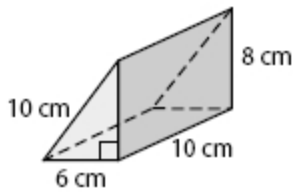
129.  $-7s - 5s - 4$

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**Find the lateral and surface area of each solid. Round to the nearest tenth, if necessary.**

130.



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**Find each square root or cube root.**

131.  $\sqrt{169}$

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**Find each product or quotient.**

132.  $2(-3)(10)$

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**Incoming 8th Grade Summer Assignment**

**Express each ratio as a fraction in simplest form.**

133. 14 girls out of 18 students

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134. What is the shape resulting from a horizontal cross section of a cylinder?

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**Find the volume of each figure. Round to the nearest tenth.**

135. cube: length 2.5 in.

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**A hotel in Charleston, South Carolina has 110 rooms. The table shows the hotel occupancy for the first half of 2010 and 2011.**

Hotel Occupancy		
Month	2010	2011
January	64	68
February	46	51
March	72	78
April	80	77
May	84	89
June	92	96

136. How do the mean absolute deviations of the 2010 data and the 2011 data compare? What conclusion can you make based on the mean absolute deviations?

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**Incoming 8th Grade Summer Assignment**

**Simplify each expression.**

137.  $x + 3x + 4$

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**Find each product or quotient. Write in simplest form.**

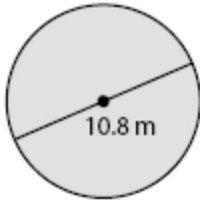
138.  $-\frac{2}{9} \cdot \frac{3}{14}$

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**Find the circumference and area of each circle. Round to the nearest tenth.**

139.



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**Simplify each expression.**

140.  $mn + 3(2mn - 4)$

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