

### Order of Operations

**Directions:** Complete each problem showing all work. You must show work or explain your solution in order to receive credit for the answer. Circle your answer.

Follow the order of operations to evaluate the following expressions. (PEMDAS)

1.  $25 - 5 + 4 - 3$

2.  $5 \times 8 - 3 \times 4$

3.  $47 - 4(5 - 3)$

4.  $16 - 4 + 3^2 \times 2 - 5$

Hint: Exponents tell how many times the base is used as a factor.

Insert parentheses to make the following sentence true.

5.  $4 \times 5 + 16 - 2 = 82$

## Integers

Compute the following:

6.  $-18 + (-45) + 12$

7.  $h = 13 - (-10)$  Find  $h$

Hint: To subtract an integer, add its additive inverse. ("change/change") To add integers with different signs, take the sign of the "larger" number.

8)  $(-4)(-7)(-11)$

9.  $-168 \div 4$

10. During the month of January, temperatures can decrease by  $20^\circ$  per week. If this happens and the temperature on January 12<sup>th</sup> was  $12^\circ$ , what is the temperature on January 19<sup>th</sup>.

## Evaluating Algebraic Expressions

For # 11-15, evaluate the expression if  $a = -8$ ,  $b = 2$ ,  $c = -5$ , and  $d = 6$

11.  $-2cd$

Hint: When no operation is indicated it is implied to be multiplication

12.  $a^2 - b$

Hint: Exponents tell the number of times the base is used as a factor.

13.  $b(a+d)$

14.  $\frac{ac}{b-d}$

15.  $|a+b|$

Hint: The absolute value of an integer is its distance from zero on a number line.

## Fractions and Decimals

16.  $25 - (14.1 + 3.9)$

Hint: Line up the decimal points

17.  $(1.35)(.0007)$

18. The fastest Monarch butterfly can fly  $\frac{1}{3}$  mile per minute. Express  $\frac{1}{3}$  as a decimal.

Hint: Divide the numerator by the

Denominator to get a decimal. Use bar notation for repeating decimals.

19.  $4\frac{1}{2} \times 2\frac{1}{3}$

Hint: Change mixed numbers to improper fractions.

20.  $2\frac{3}{4} + 3\frac{3}{5}$

Hint: Find the least common denominator. Simplify.

## Percents

21. What is 3% of 156?

Hint: Change the percent to a decimal  
"Of" means multiply

22. Some friends are sharing pizza. If each person gets  $\frac{1}{8}$  of the pizza, what percent of the pizza does each person get?

Hint: A percent is another way of writing a fraction whose denominator is 100.  
Set up a proportion

23. Bailey went out to dinner. It cost \$ 45.00. He wanted to leave a 20% tip for his waitress. Find the tip.

Hint: Tip is a percentage "of" the bill.

24. Jack hit the ball 9 out of 15 times. Find the percent that Jack hit the ball.

Hint: Make a fraction first.

25. Jackie bought an iphone for \$200. Find the **total cost** including a 7% sales tax.

Hint: Tax is a percentage "of" the bill  
Total cost = Original Cost + tax

## Ratio and Proportion

**Directions:** Solve the following. **Be sure to label with the proper units.**

26. Simplify the following ratios:

Hint: Compare same units of measure

- a) 3 feet to 8 inches      b) 30 cm to 2 meters

27. Solve for x:  $\frac{5}{9} = \frac{x}{5.4}$

Hint: Product of the extremes = product of the means

28. On our vacation, we traveled 416 miles using 16 gallons of gas? How many miles were we able to go on 1 gallon of gas?

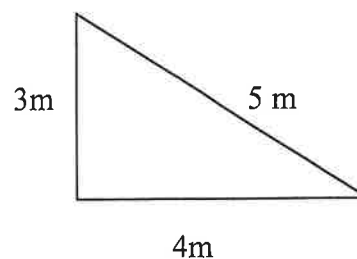
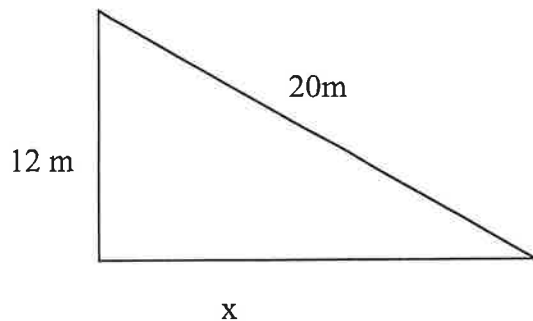
Hint: Find the unit rate

29. The ratio of boys to girls in the 8<sup>th</sup> grade is 5 : 6 . If there are 75 boys in the 8<sup>th</sup> grade, how many are girls?

Hint: Set up a proportion of two ratios comparing girls to total students. (add the ratio numbers to get a ratio total.)

30. The triangles below are similar. Find the value of x.

Hint: Set up a proportion.



## Coordinate System and Transformations

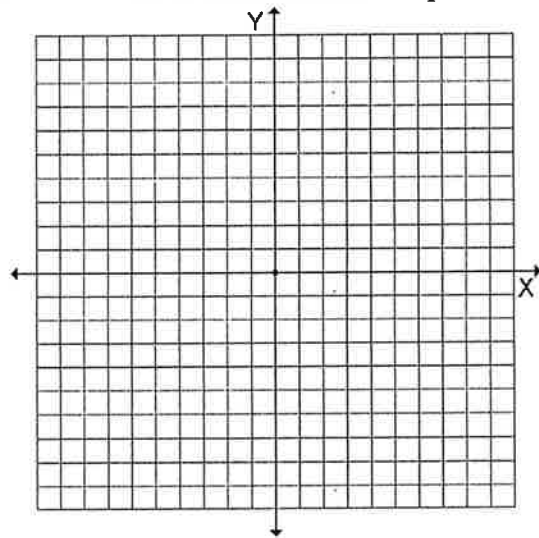
36. In which quadrant is the ordered pair  $(-2, -3)$ ?

Hint: The 1<sup>st</sup> Quadrant is the top right and then follow counter clockwise.

37. Explain why the point A  $(-7, 10)$  is different from the Point B  $(7, -10)$ .

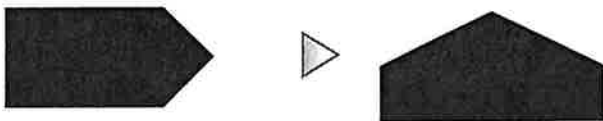
38. Triangle RST has vertices R  $(2, 1)$ , S  $(5, 3)$ , and T  $(3, 4)$ . Graph the triangle given above, then reflect it across the y-axis.

Hint: Reflection is a flip.



39. What type of transformation is shown in the figure below?

Hint: Is it a reflection (flip), translation (slide), or a rotation (turn)?



40. When playing chess, you can move the game pieces up or down, left or right, or diagonally. What type of transformation is used in this game? Give reasons for your answer.

Hint: Same as # 39

## Perimeter, Area, and Volume

Solve the following problems. Label the correct units of measure. Hint: Draw the picture & Use the reference card.

46. Find the area of a square whose perimeter is 80 inches.

Hint: Find the measure of each side first.

47. Find the volume of a tissue box whose length is 9 inches, width is 4 inches and height is 3 inches.

Hint: A tissue box is a rectangular prism

48. Sally was on the boardwalk and purchased a really large ice cream cone. It had a radius of

Hint: Find the volume of a cone.

3 inches and a height of 6 inches. If the cone was completely filled with ice cream, with no extra ice cream on top, how many cubic inches of ice cream did Sally have? Let  $\pi = 3.14$

$$V = \frac{1}{3}h\pi r^2$$

49. Mary wants to put a fence around her circular garden. The diameter of her garden is 12 feet. Find the distance around Mary's garden. Let  $\pi = 3.14$

Hint:  $C = \pi d$

50. The width of a rectangle is 7 inches and the length is 13 longer than the width. Find the perimeter of the rectangle.