

**Directions:** Show all work. Place answer on the blank line next to problem number.

**Answer the following problems:**

\_\_\_\_\_ 1. Find the opposite of 9      \_\_\_\_\_ 2. Find the opposite of  $-\frac{4}{5}$

\_\_\_\_\_ 3.  $|8|$       \_\_\_\_\_ 4.  $|-4|$

\_\_\_\_\_ 5. Write these 7 numbers in increasing order:

$$\frac{-1}{3}, 0, 1.5, -0.6, \frac{1}{2}, -2, \sqrt{8}$$

**Evaluate each expression.**

\_\_\_\_\_ 6.  $|8| - |-6|$

\_\_\_\_\_ 7.  $7 - 3 - |-2|$

\_\_\_\_\_ 8.  $-(-|-2| + 10)$

\_\_\_\_\_ 9. Find the sum  $\begin{bmatrix} 3 & 7 \\ -5 & 1 \end{bmatrix} + \begin{bmatrix} -1 & 4 \\ -2 & 5 \end{bmatrix}$

\_\_\_\_\_ 10. Find the difference  $\begin{bmatrix} 1 & 4 \\ 2 & 5 \\ 3 & 6 \end{bmatrix} - \begin{bmatrix} -7 & 10 \\ 8 & -11 \\ -9 & 12 \end{bmatrix}$

\_\_\_\_\_ 11. Find the value of x, y and z:  $\begin{bmatrix} 2x & 8 \div 2 \\ 3 - y & 9 + z \end{bmatrix} = \begin{bmatrix} 6 & 4 \\ 2 & 17 \end{bmatrix}$

*Evaluate the following expressions when  $x = -8$ ,  $y = 3$ , and  $z = 1$ .*

\_\_\_\_\_ 12.  $x + y + z$

\_\_\_\_\_ 13.  $x - y - z$

\_\_\_\_\_ 14.  $xyz$

\_\_\_\_\_ 15.  $\frac{xy}{z}$

\_\_\_\_\_ 16.  $\frac{\sqrt{x}}{y} + z$

*Simplify each of the following.*

\_\_\_\_\_ 17.  $-6(x + 9)$

\_\_\_\_\_ 18.  $8(6y - 2)$

\_\_\_\_\_ 19.  $(y - 11)(-3y)$

\_\_\_\_\_ 20.  $(-35)\left(\frac{-1}{5}\right)(-2)$

\_\_\_\_\_ 21.  $(xy)^4$

\_\_\_\_\_ 22.  $\frac{-18}{\frac{2}{3}}$

\_\_\_\_\_ 23.  $\frac{9}{28} \div \frac{-3}{4}$

\_\_\_\_\_ 24.  $\frac{-21z + 7}{7}$

\_\_\_\_\_ 25.  $-\sqrt{576}$

\_\_\_\_\_ 26.  $\sqrt{36}$

\_\_\_\_\_ 27.  $\pm\sqrt{25}$

*Simplify each of the following.*

\_\_\_\_\_ 28.  $-9(-x - 8)$

\_\_\_\_\_ 29.  $-(-(-2 - 9))$

\_\_\_\_\_ 29.  $-4(2x + 8) - 2(x - 1)$

\_\_\_\_\_ 30.  $3(-2y + 8) - (3y - 4)$

\_\_\_\_\_ 31.  $8x + 3(5x - 4)$

\_\_\_\_\_ 32.  $\frac{1}{4}(12y - 2) + 9y$

\_\_\_\_\_ 33.  $\left(\frac{-7}{16}\right)\left(\frac{-3}{8}\right)\left(\frac{1}{4}\right)$

34. *Complete the following table by placing a check mark in the appropriate box.*

Number	Real	Rational	Irrational	Integer	Whole	Natural
-9						
$\sqrt{7}$						
$-\frac{1}{3}$						
$\frac{8}{4}$						

- \_\_\_\_\_ 35. The area of a square frame is 144 inches. Find the side length of the frame.
- \_\_\_\_\_ 36. The Lake Zurich Math team is at the ICTM Regional competition. They get the first 3 problems right for 10 points. They then lose 5 points, gain 3 more and lose 6 points. On the final question they earn 9 points. How many points does the team have at the end of the competition?
- \_\_\_\_\_ 37. An investor purchases 20 shares of a stock at \$1.75 per share. The next day, the change in value of a share is -\$0.50 per share. What is the total value of all 20 shares the next day?