

Algebra 1 Chapter 1 Pre-Test

Write a variable expression for each word phrase.

- 1.) The 8 more than the product of a number and 4.

$$8 + 4n$$

- 2.) The 9 less than the sum of k and 7.

$$(k+7) - 9$$

- 3.) The difference between 12 and b.

$$12 - b$$

- 4.) The quotient of f and 11.

$$\frac{f}{11} \quad \text{or} \quad f \div 11$$

- 5.) Two times the quantity 8 plus w.

$$2(8+w)$$

Simplify each expression.

- 1.)  $3 \times 2^2 + 16 \div 4 - 3$

$$\begin{aligned} 3 \times 4 + 16 \div 4 - 3 & \quad 16 - 3 \\ 12 + 16 \div 4 - 3 & \quad (13) \\ 12 + 4 - 3 & \end{aligned}$$

- 2.)  $8 + [(24 \div 4 \times 10) - 2]$

$$\begin{aligned} 8 + [(6 \times 10) - 2] \\ 8 + [60 - 2] \\ 8 + 58 = (66) \end{aligned}$$

- 3.)  $12 - 3(8^2 + 2^3)$

$$\begin{aligned} 12 - 3(64 + 8) & \quad 12 - 216 \\ 12 - 3(72) & \quad (-204) \end{aligned}$$

- 4.)  $68 - 12 \div 2 \div 3 \times 2^5$

$$\begin{aligned} 68 - 6 \div 3 \times 2^5 & \quad \leftarrow \text{should have been first :/} \\ 68 - 6 \div 3 * 32 & \\ 68 - 2 * 32 & \quad 68 - 64 \\ & \quad (4) \end{aligned}$$



Evaluate the expression.

1.)  $8a + 2(b - c)^2$ , for  $a = 3$ ,  $b = 7$ , and  $c = 4$

$$\begin{aligned} & 8(3) + 2(7-4)^2 \\ & 8(3) + 2(3)^2 && 24+18 \\ & 8(3) + 2(9) && \textcircled{42} \\ & 24 + 2(9) \end{aligned}$$

2.)  $3x - 2y - y(9 - 4)$ , for  $x = 4$  and  $y = 2$

$$\begin{aligned} & 3(4) - 2(2) - 2(9-4) \\ & 3(4) - 2(2) - 2(5) && 12 - 4 - 10 \\ & 12 - 2(2) - 2(5) && 8 - 10 \\ & 12 - 4 - 2(5) && \textcircled{-2} \end{aligned}$$

3.)  $def + 6e^3$ , for  $d = 6$ ,  $e = 2$ ,  $f = 3$

$$\begin{aligned} & (6)(2)(3) + 6(2)^3 && 36 + 48 \\ & (6)(2)(3) + 6(8) && \textcircled{84} \\ & 12(3) + 6(8) \\ & 36 + 6(8) \end{aligned}$$

4.)  $\frac{ab}{2} - 3$ , for  $a = 7$ ,  $b = 8$

$$\begin{aligned} & \frac{(7)(8)}{2} - 3 && \frac{56}{2} - 3 \\ & && 28 - 3 \\ & && \textcircled{25} \end{aligned}$$

Compare. Use  $>$ ,  $<$ , or  $=$  to complete each statement.

1.)  $-6.98 \underline{>} -6.99$

2.)  $-3 \underline{<} \overset{8}{| -8 |}$

3.)  $|-12| \overset{12}{>} \overset{5}{| -5 |}$

4.)  $2 \overset{-9}{>} | -9 |$



Determine whether each number is rational or irrational. In addition, name the set(s) of numbers to which each number belongs.

- 1.) 6.779 rational, terminal decimal
- 2.) 0.567567567... rational, repeating decimal
- 3.) 9 rational, counting, whole, integer
- 4.) 0 rational, whole, integer
- 5.) -3 rational, integer
- 6.)  $\pi$  irrational
- 7.)  $\sqrt{16}$  rational, perfect square
- 8.)  $\sqrt{50}$  irrational, imperfect square
- 9.)  $\frac{1}{2}$  rational, fraction

Find each sum.

1.)  $-8 + (-5)$  same sign -  
take the sum  
 $-13$

2.)  $9 + 3$   
 $12$

3.)  $-6 + 8$  different signs -  
take the difference  
 $2$  then take  
 $\frac{8}{-6}$  bigger sign.  
 $\frac{-6}{2}$

4.)  $4 + (-11)$   $11 - 4 = 7$   
 $-7$



Find the difference of each.

1.)  $8 - 12$  opposite  
 $8 + (-12)$

$-4$

2.)  $-9 - 4$

$-13$

$-9 - 4$  opposite  
 $-9 + (-4)$

3.)  $3 - (-5)$

$8$

$3 - (-5)$  opposite  
 $3 + 5$

4.)  $-12 - (-6)$

$-6$

$-12 - (-6)$  opposite  
 $-12 + 6$

Find each.

1.)  $8(-5)$

$-40$

different signs  $\rightarrow$  negative

2.)  $(7)(-3)^2$

$63$

$7(-3)^2$   
 $7(-3)(-3) \quad 7(9) = 63$

3.)  $(-9)(4)$

$-36$

4.)  $(-8)(-2)$

$16$

same signs  $\rightarrow$  positive

5.)  $\frac{-2}{3} \div \frac{3}{4}$

$-\frac{8}{9}$

$\frac{-2}{3} \div \left(\frac{3}{4}\right)$  take inverse  
 $\frac{-2}{3} \times \frac{4}{3} = -\frac{8}{9}$

6.)  $84 \div (-12)$

$-7$

$\frac{240}{(-2)(-5)} = \frac{240}{10} = 24$

7.)  $\frac{240}{(-2)(-5)}$

$24$



Evaluate each expression.

1.)  $-ab^2$  for  $a = 2$  and  $b = -3$

$$\begin{aligned} & -(2)(-3)^2 \\ & -(2)(9) \quad -(18) = \boxed{-18} \end{aligned}$$

2.)  $-(-w)^2$  for  $w = 3$

$$-(-3)^2 = -(9) = \boxed{-9}$$

3.)  $-x^3 + xy$  for  $x = 4$  and  $y = -5$

$$\begin{aligned} & -(4)^3 + (4)(-5) \quad -64 + (-20) \\ & -64 + (4)(-5) \quad \boxed{-84} \end{aligned}$$

Simplify each expression.

1.)  $\frac{2}{5}(5a + 45)$

$$\frac{10a}{5} + \frac{90}{5} = \boxed{2a + 18}$$

2.)  $6(x + 3) - 4x$

$$6x + 18 - 4x = \boxed{2x + 18}$$

3.)  $-8 - 4(3b + 7)$

$$-8 - 4(3b + 7) \quad \text{take negative too!}$$

$$-8 \quad -12b \quad -28$$

4.)  $-(4s^2 + 1)$

$$\boxed{-12b - 36}$$

$$\boxed{-4s^2 - 1}$$

when negative is on outside of parenthesis, just take opposite of everything inside.



Name the property that each equation illustrates.

1.)  $(4 \cdot 5) \cdot 2 = 4 \cdot (5 \cdot 2)$

Associative property

2.)  $23 + 54 + 27 = 23 + 27 + 54$

commutative property

3.)  $5 + 0 = 5$

Additive Identity

4.)  $\frac{2}{3}(3/2) = 1$

Inverse property

5.)  $3(a + b) = 3a + 3b$

Distributive property



Label each quadrant. Next, plot the points below.

- 1.) A (6, -4)
- 2.) B (-7, 2)
- 3.) C (0, 8)
- 4.) D (3, 9)
- 5.) E (-7, -1)
- 6.) F (-4, 0)

