

## ***Algebra II CP Summer Math Problem Set***

1. Gordon rode his motorcycle to school at 20 miles per hour, and then jogged back 5 miles per hour. If the round trip took him 5 hours, how far was it to school?

2. Heather made the trip by bus in 8 hours and the return trip by car in 10 hours. The bus traveled 12 miles per hour faster than the car. How far was the trip?

3. The ships were 400 miles apart at midnight and were headed toward each other. If they collided head-on at 8 a.m., find the speed of both ships if one was 20 miles per hour faster than the other.

***Match each of the following with the correct property.***

4) \_\_\_\_\_  $4(2x + y) = 8x + 4y$

5) \_\_\_\_\_  $5 \cdot \frac{1}{5} = 1$

6) \_\_\_\_\_  $x + y + z = z + y + x$

7) \_\_\_\_\_  $4(xy) = (4x)y$

8) \_\_\_\_\_  $g + (-g) = 0$

9) \_\_\_\_\_  $p \cdot 1 = p$

10) \_\_\_\_\_  $m + 0 = m$

11) \_\_\_\_\_  $a + (b + c) = (a + b) + c$

A) Multiplicative Identity

B) Additive Identity

C) Multiplicative Inverse

D) Additive Inverse

E) Commutative of Addition

F) Commutative of Multiplication

G) Associative of Addition

H) Associative of Multiplication

I) Distributive Property

12) Put a check in the box if the number belongs to that set.

$N$  – Natural Numbers  
 $W$  – Whole Numbers  
 $Z$  – Integers  
 $Q$  – Rational Numbers  
 $I$  – Irrational Numbers  
 $R$  – Real Numbers

	N	W	Z	Q	I	R
-6						
$\sqrt{3}$						
0						
$-\frac{2}{3}$						

**Evaluate**

13)  $10 + 4^3 \div 8 - 22$

14)  $7 + 8 \cdot 3 \div 4 - 10$

**Evaluate**

15)  $-m(2m + m^2)$ ; if  $m = -5$

16)  $3|2b - 5| + 6|7 - b|$ ; if  $b = -3$

17)  $ab - a - b$ ; if  $a = -\frac{1}{9}, b = -\frac{7}{8}$

**Simplify by combining like terms**

18)  $7x - 9y - 12x + 36y$

19)  $\frac{1}{3}(m^2 + 12p) - \frac{2}{5}(10m^2 - 25p)$

**Solve each equation:**

20)  $7x + 3 = 9x - 36$

21)  $-6(2x + 3) = -12$

22)  $4(m - 7) - 9 = 3 - 5(m - 2)$

**Solve each formula for the indicated variable**

23)  $S = 3\pi r^2 h$  ; for h

24)  $D = b^2 - 4ac$  ; for c

25)  $|x - f| = g$  ;for x

**Solve for x and state any restrictions**

26)  $\frac{2x+1}{ab} = 5$

27)  $d(x + y) = f(x - p)$

28)  $A = x + xrt$

**Solve and graph each inequality**

29)  $3x + 6 > -12$

30)  $4(x + 2) < 4x - 2$

**Solve and graph each compound sentence.**

31)  $3x + 1 \leq -17$  or  $2x + 4 > 18$

32)  $-6 \leq 2w + 4 \leq 14$

33)  $30 - 6x \leq 0$  or  $2x + 7 < 1$

**Solve each equation and check for extraneous roots.**

34)  $|4x + 5| = -7$

35)  $6|x - 3| = 30$

36)  $|3x + 2| = 2x + 1$

**Solve each inequality and graph the solution set.**

37)  $3|x - 1| < 6$

38)  $|3x + 3| - 4 > 2$

**Find the probability of each event given the word "COLORADO"**

39) p(selecting an A)

40) p(selecting a C or R)

41) p(letter)

42) p(number)

43) p(not selecting an O)

44) The width of a rectangle is 4 meters more than one fourth its length. The perimeter is 28 meters. Find the length and width.