Algebra 2 Chapter 1 Pre-Test

Each problem is worth 4 points. Please show all work in order to receive partial credit for incorrect responses.

1.) Find the opposite of each number.

   a) 8

   b) ⅓

   c) -7

   d) -0.6

2.) Find the reciprocal of each number.

   a) 4

   b) 5/7

   c) -½

   d) -6

3.) Simplify.

   a) |7 - 10|

   b) -|-8|

   c) 0.3 |-4|

   d) - |11 - 18|

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

a) 6.779

b) 0.567567567…

c) 9

d) 0

e) -3

f) π

g) $\sqrt{16}$

h) $\sqrt{50}$

5.) Simplify by combining like terms.

a) 6a - 4(a + 1)

b) 11x + 7y + 3x - 5y

6.) Simplify by combining like terms.

c) a(a - c) + c(c - a)

d) $\frac{3(x+y)}{4} + \frac{9x}{2}$

7.) Simplify the algebraic expression. Then evaluate.

$7(g + h) - (g - h)$; $g = 4, h = -5$

8.) Evaluate each expression for the given variable.

$8r^2 + 4(r - s) - 3s$; $r = 3, s = -2$

9.) Evaluate each expression for the given variable.

$-n(3m + 2) - 2m^2$; $m = 3, n = 5$

10.) Evaluate each expression for the given value of the variable.

$a^2 + b^2$; $a = -5, b = 6$

11.) Solve each equation for the given variable.

$5t - 3f = 2t$, for t

12.) Solve each equation for the given variable.

$\frac{x+2y}{3} + 5y = 4x$, for y

13.) Solve for a.

$\frac{2}{3}a + \frac{1}{5}b = 4 - a$

14.) Solve for x.

$$\frac{x+y}{z} = \frac{3}{7}$$

15.) Solve the inequality. Graph the solution.

$-6(2 - b) + 3b \geq 0$

16.) Solve the compound inequality. Graph the solution.

$3x \leq 21$ or $-9x < -72$

17.) Solve the inequality. Graph the solution.

$\frac{2}{3}(-6x + 15) \geq 6$

18.) Solve each equation. Check for extraneous solutions

$|x + 4| = 9$

19.) Solve each equation. Check for extraneous solutions

$|3x - 5| = 10 + 2x$

20.) Solve each equation. Check for extraneous solutions

$|x - 3| + 12 = 7$

21.) Solve each equation. Check for extraneous solutions

$|4x - 12| = 8x$

22.) Solve and graph the inequality.

$|2x + 4| \leq 10$

23.) Solve and graph the inequality.

$|x - 9| - 7 \leq -4$

24.) What is the probability of each using standard die

a) Rolling an even number

b) Rolling a 3 or 4

c) Rolling a 7

25.) Since 1996, there have been 24 Super Bowls. Of these, the New England Patriots have represented the AFC 10 times, the Denver Broncos 4 times, and the Pittsburgh Steelers 4 times. Use this information to answer the following:

a) What is the probability the New England Patriots would represent the AFC during this time?

b) What is the probability that the Denver Broncos or Pittsburgh Steelers would represent the AFC during this time?

c) What is the probability that another team other than the New England Patriots, Denver Broncos or Pittsburgh Steelers would represent the AFC during this time?

d) What is the probability that Pittsburgh was not a representative during this time?