

Name: \_\_\_\_\_.

Holy Name Junior/Senior High School

10-11

Algebra I Summer Assignment

**Please follow directions closely and answer ALL problems to the best of your ability.****I. Solve. Do NOT use calculator, show all work. Make sure answers are given in lowest terms. The \* symbol means multiplication. The / symbol means division and forms fractions.**

1.  $3/8 - 1/2$

2.  $3/4 + 1/2$

3.  $3\ 3/4 - 1\ 1/3$

4.  $2/3 * 6/7$

5.  $2\ 1/4 * -3\ 1/2$

6.  $(-4/5) / (-16/15)$

7.  $-1\ 4/5 / (9/10)$

**II. With each algebraic expression in exercises 8-13, match the letter of the corresponding phrase in a through k that gives its meaning. More than one answer is possible; make sure all possible answers are indicated.**

8.  $-5x$

a. 8 subtracted from  $3x$ .b. 12 divided by  $x$ .

9.  $2x/5$

c. 9 added twice  $x$ .d. The ratio of 12 to  $x$ 

10.  $3x - 8$

e. The product of  $-5$  and  $x$ .f. Twice  $x$  divided by 5.

11.  $2x + 9$

g. The difference b/w 10 and  $4x$ h.  $x$  multiplied by  $-5$ 

12.  $10 - 4x$

i. The sum of twice  $x$  and 9j. Three times  $x$  minus 8

13.  $12/x$

k. The ratio of  $2x$  and 5**Write in words for each algebraic expression.**

14.  $5x/2y$

15.  $2p-5$

16.  $1+2x$

**III. Use the order of operations to evaluate each expression ;  $x^2 = x$  squared. PEMDAS = Parenthesis , Exponents, Multiplication, Division, Addition and Subtraction.**

17.  $-4 * 9 / -6$

18.  $10 - 6 / 2 * 5$

19.  $18 / 9 - 6 * 2$

20.  $12 + \frac{10-7}{3}$

21.  $20 - 4^2$

22.  $-20 / [11 - 3(1 - 4)]$

23.  $100 - 160 / 2^3$

24.  $-3 * 2^3 / -2^2$

25.  $10 * -2^3 / (-4 + 3^2)$

**IV. Plug in the given values for each variable and tell which numbers are solutions to the equations or inequalities. More than one answer is possible. If no values fit, the answer is a null set. Replacement set  $\{-5, -2, 0, 2, 10\}$**

26.  $2x - 1 = -1$

27.  $10 - 4x = 30$

28.  $3x^2 + 2 = 14$

29.  $2x - 1 = 2x + 4$

30.  $5x \leq 40$

31.  $x - 2 > -7$

**V. Combining like terms. You may only add or subtract terms that have the same variables with the same exponents. Simplify each expression as much as possible.**

32.  $4x^2 - 5x - x^2 + x$

33.  $20x^2y - (-10x^2y)$

34.  $15xy - 12yx + x + 3y$

35.  $10x^2 - 2(4x - 3x^2) + 5x$

36.  $2.8x - 1.5y + 1.2x + .5y$

**VI. Use formulas given to solve each of the following word problems.**

**Volume of a rectangular box = Length \* Width \* Height**

**Distance = rate (speed) \* time**

37. Find the volume of a rectangular crate whose length = 40 feet, width = 20 feet, and height = 10 feet.

38. Another crate having the same length and height as in problem 37 but 10 feet wider. Find the difference in volume between the two crates.

39. A train leaves Boston and travels north at 65 mph. Another train leaves at the same time and travels south at 75 mph. How long will it take before they are 245 mi apart ?

40. Two steamers leave a port on a river at the same time, traveling in opposite directions. Each is traveling at 22 mph. How long will it take for them to be 110 mi apart ?

**VII. Solve each equation for the variable; show all work.**

41.  $x + 1/3 = 1 \frac{3}{4}$

42.  $6p - 5 = 19$

43.  $-20 = 48 - 17b$

44.  $2y / 3 = -8$

45.  $5z / 6 + 15 = -35$

46.  $4a - 9 = a + 3$

47.  $-3a = a + 2$

48.  $2(2m) = -(m + 1)$

49.  $10 + 2(c - 1) = c + 1$

50.  $2x - 15 = 3x + 5$