

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

This packet contains problems from Algebra I, a prerequisite course necessary for the completion of Algebra II. This packet is to be completed and handed in on the first day of school. The skills needed throughout this packet will be helpful in learning and comprehending Algebra II concepts.

1.) What property is indicated by:  $(4+3) + 2 = 4 + (3+2)$ 

A.) Associative

B.) Commutative

C.) Distributive

2.) If Murphy can run 4 miles in 40 minutes, how long will it take him to run 8 miles at this rate?

3.) Solve the proportion:

$$\frac{3}{9} = \frac{x}{15}$$

4.) What percent of 56 is 8?

5.) The sum of five and a number is twelve.  
What is the other number?

6.) Solve the inequality:

$$3x+5 < 20$$

7.) Solve the inequality:

$$4x-3 > 2(x+3)$$

8.) Multiply:

$$(p - 8)(2p+2)$$

9.) Simplify:

$$(2x^2yz^4)^2$$

10.) Solve the compound inequality:

$$-14 < 2x + 16 < 12$$

11.) In triangle ABC, side AB is 2c m shorter than side AC, while side BC is 1 cm longer than side AC. If the perimeter is 62 cm, find the length of side AC.

12.) Solve the equation and graph it on a number line:  $|2x + 4| = 8$

14.) Solve the inequality:  $|4x - 3| < 5$

15.) Solve the system of equations by any method:

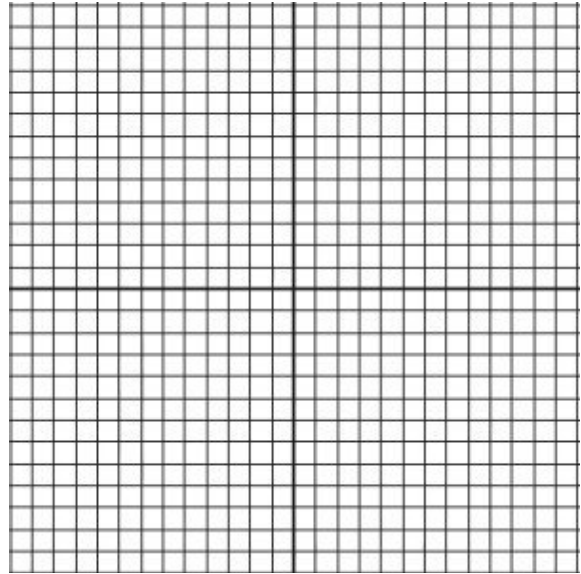
$$\begin{cases} 7x + 8y = -10 \\ 7x + 2y = 8 \end{cases}$$

16.) Solve the system of equations by using substitution:

$$\begin{cases} y = 4 - x \\ 4x + 3y = 10 \end{cases}$$

17.) Graph the inequality and give one solution.

$$y < 3x + 2$$



18.) Simplify:  $w^4w^6$

19.) Simplify:

$$10(5e^4)^2$$

20.) Simplify using the law of exponents:

$$\frac{x^3}{y^{-3}}$$

21.) Subtract:

$$(-5x - 2x^2 + 1) - (-3x^2 + 3x - 8)$$

22.) Multiply:

$$(4x + 1)(2x - 1)$$

23) Add:

$$(-3x^3 - 7x^5 + 8x) + (3x^5 - 2x^3 + 16x)$$

24.) Multiply:

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

25.) Factor the polynomial:

$$14x^2 + 4x$$

26.) Factor completely

$$(x^2 - 12x + 36)$$

27.) Factor completely

$$(z^2 + 6z + 8)$$

28.) Express in simplest radical form:

$$\sqrt{56}$$

29.) Express in simplest radical form:

$$\sqrt{\frac{25}{32}}$$

30.) Express in simplest radical form:

$$\sqrt{12} - 4\sqrt{12}$$

31.) Simplify:

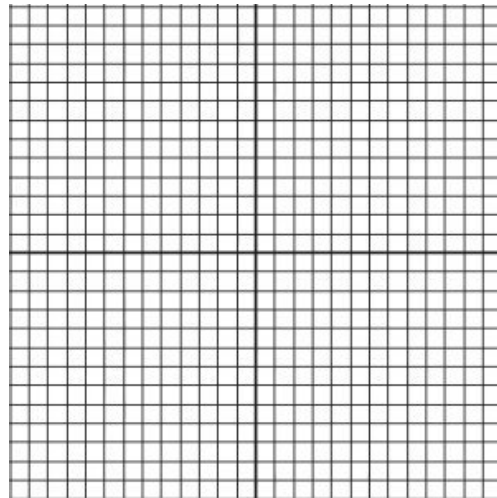
$$\frac{5x + 13}{5x - 13}$$

32.) Simplify:

$$\frac{48 + 6x}{8}$$

33.) In the equation  $y = 4x - 2$ , what is the slope ( $m$ ), what is the y-intercept ( $b$ )?

34.) What is the equation of the line whose slope is 2 and passes through the point  $(1, 3)$ .



35.) Graph the line:  $y = 2x - 3$

36.) Rationalize the denominator:

$$\frac{6}{\sqrt{8}}$$

37.) Solve  $x^2 - 14x + 45 = 0$  by any method.

38.) Solve  $2x^2 - 2x - 1 = 0$  by any method.

39.) A penny, a nickel and a dime are tossed. Find the probability of getting 3 heads.

40.) A pizzeria serves 2 types of dough (wheat and white), 3 kinds of sauces (chunky tomato, marinara and white sauce), 2 kinds of cheeses (provolone and mozzarella). If a pizza uses one type from each category, how many different kinds of pizzas can the pizza man make?