

**Honors Algebra 2**

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

**Pre-requisite Review Skills Packet – NO Calculator Allowed**

Print this and complete these problems neatly, WITHOUT calculator, showing all your work. Or do all work on separate paper, box in answers, and make sure work is numbered and NEAT! No Work = No Credit!

These problems will review some of the necessary pre-requisite concepts which are needed to have a successful start to Honors Algebra 2. Plan to turn this in on the first day of class.

**Solve each equation for x.**

1)  $\frac{1}{9} - \frac{2}{3}x = \frac{1}{18}$

2)  $\frac{1}{2}x + \frac{1}{6} = \frac{3}{4}x + \frac{1}{5}$

3)  $5(x - 3) + 2 = 3(x + 2) + 2x$

4)  $2x + 1 = 3(x - 1) - x + 4$

5)  $8xy + 5 = z$

6)  $4x - 9xy = z$

7)  $\frac{\sqrt{x+10}}{6} = \frac{5}{\sqrt{x+10}}$

8)  $x^2 - 10x - 24 = 0$

**Solve each inequality for x. Graph the solutions and write your answer in interval notation.**

9)  $7 - 5x \leq 52$

10)  $14 < 7x - 21$

11)  $2(4x + 9) \leq 18$

12)  $90 \geq 5(2x + 6)$

13)  $9x + 2 > 4x + 15$

14)  $2(x + 4) < 3x - 2(x - 5)$

Solve the system of equations by using substitution or elimination. Do work on a separate piece of paper.

$$15) \begin{cases} 4x + 3y = 11 \\ 2x - 2y = 2 \end{cases}$$

$$16) \begin{cases} y = -5x + 3 \\ 2x - y = 11 \end{cases}$$

$$17) \begin{cases} 3x + 2y = 9 \\ 4x - 6y = -14 \end{cases}$$

$$18) \begin{cases} 6x + 3y = 12 \\ 2x = 8 - y \end{cases}$$

$$19) \begin{cases} x - y = -9 \\ 7x + 2y = 9 \end{cases}$$

$$20) \begin{cases} x = 3y + 6 \\ 12y - 4x = -24 \end{cases}$$

If  $f(x) = -3x^2 - 4x$  and  $g(x) = 3x + 2$ , evaluate the following.

$$21) f(-5)$$

$$22) f(3)$$

$$23) g(0)$$

$$24) f(x - 2)$$

$$25) g(n + 3)$$

Simplify the following expressions.

$$26) \sqrt{\frac{48}{5}}$$

$$27) \frac{16a^{-2}bc^{-3}}{(4ab^3)^{-2}}$$

$$28) (2x - 3)^2$$

$$29) \sqrt{54}$$

$$30) (x^2 - 5x + 4)(2x - 9)$$

$$31) \frac{4 - 4^2 \div 8 \cdot 3 + 6}{3 - (1+1)^2}$$

$$32) 3(15x - 9y) + 5(4y - x)$$

$$33) 2(10m - 7a) - 3(8a - 3m)$$

$$34) \frac{1}{4}(6 + 20y) - \frac{1}{2}(19 - 8y)$$

$$35) 7(0.2p + 0.3q) + 5(0.6p - q)$$

**Factor the following expressions completely.**

36)  $2xy^3 - 10x$

37)  $-12x^3 - 6x$

38)  $x^2 + 5x + 6$

39)  $2x^2 - 11x - 21$

40)  $64x^2 - 81y^2$

41)  $x^3 + 6x^2 + 5x$

42)  $x^2 + 5x - 24$

43)  $6x^2 - x - 15$

44)  $4x^2 - 400$

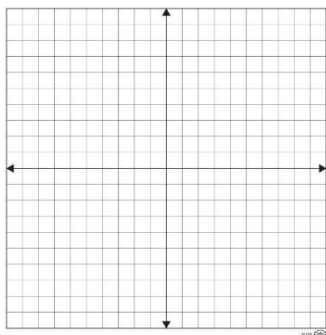
45)  $3x^2 + 21x - 24$

46)  $5x^2 - 18x + 9$

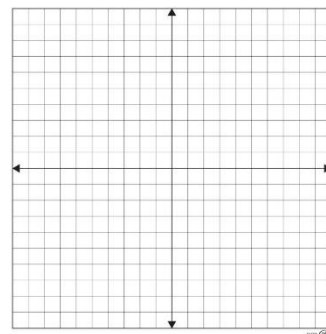
47)  $16x^2 - 1$

**Graph the following linear equations. Identify the slope, x-intercept and y-intercept.**

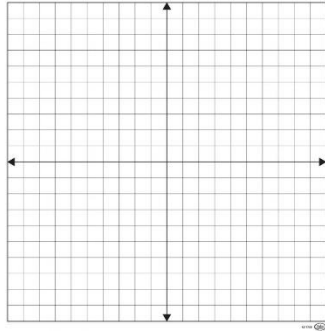
48)  $6x + 3y = 9$



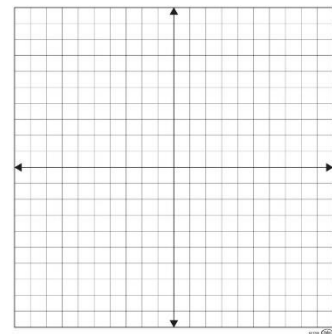
49)  $3x - y = 2$



50)  $3x - 5y = 15$



51)  $3x + 4 = y + 3x$



**Problem Solving**

52) A parking attendant charges a different rate to park a car than the rate to park a truck. It costs \$10.75 to park 3 cars and 2 trucks. It costs \$12.25 to park 7 cars and a truck. What is the rate to park a car? What is the rate to park a truck?

53) Hair grows on your head faster than any other place on your body. Sue was interested in figuring out how fast her hair grows, so she measured the growth. After 15 days, her hair grew 3 millimeters. After 50 days, her hair grew 10 millimeters. Her hair growth can be measured by a linear relationship.

a. Write a linear function  $g(x)$ , to represent the growth of her hair as a function of  $x$ . Where  $x$  represent the number of days.

b. Using your equation, how long will it take Sue's hair to grow 17 millimeters?

c. Using your equation, how long will Sue's hair grow in 82 days?

**Find the domain and range of each of the following relations.**

**Determine if the relations are functions. If yes, explain why. If no, explain why not.**

54)  $\{(3, 1), (7, 3), (-2, -5), (-8, -1)\}$

55)

$x$	-2	-1	0	1	2
$y$	8	4	0	4	8

56)

