

The purpose of the packet is to help you identify the topics you don't remember from Algebra 1. Use it to help identify your weaknesses. These are topics you'll need to review on your own before you enter Algebra 2 Honors. We will be available over the summer to help you, so don't panic if you can't remember everything!

☺ Please work hard and see us right away if you are having trouble. Check the help session calendar on Edline for dates and times.

**\*\*\*You should be able to complete this packet without using a calculator.**

**A. Sets & Properties of Real Numbers/ Simplifying Expressions**

Name the set(s) to which each number belongs.

**N** = Natural numbers

**W** = Whole numbers

**Z** = Integers

**Q** = Rational numbers

**I** = Irrational numbers

**R** = Real numbers

1.  $-4$

2.  $\frac{3}{4}$

3.  $0$

4.  $1.13131313\dots$

5.  $\pi$

6.  $3.78650457\dots$

7.  $8$

8.  $\sqrt{16}$

9.  $\sqrt{3}$

Simplify each expression.

10.  $12 - 15 \div 3 \cdot 5$

11.  $36 - 4(12 + 6 \cdot 4)$

12.  $-3^2$

Give an example that illustrates each property, and explain what each property means.

13. a) Commutative Property of Addition

b) Commutative Property of Multiplication

14. a) Associative Property of Addition

b) Associative Property of Multiplication

15. What is the identity element for multiplication? Why?

16. What is the identity element for addition? Why?

17. Give the additive inverse of each real number.

a)  $-\frac{2}{7}$

b) 3.4

18. Give the multiplicative inverse of each real number.

a)  $-\frac{3}{4}$

b) 1

19. Use the distributive property to simplify each expression.

a)  $3(x - y)$

b)  $(a + b + 2c)5$

c)  $8 - 2(x - 1)$

20. Factor each expression.

a)  $3x - 6y$

b)  $abc^2 + 3b$

**B. Expressions, Equations, and Inequalities**

21. What is the difference between an expression and an equation?

Solve each equation or inequality.

22.  $2(x + 4) = 5x - 7$

23.  $4 - (2x + 3) = 2x + 1$

24.  $\frac{1}{2}(x - 3) + \frac{3}{4}(2x - 1) = \frac{1}{3}$

25.  $\frac{7x + 3}{5} = \frac{2 - 3x}{4}$

$$26. 0.3(x-1) + 1.25(2x+5) = 1$$

$$27. 6x - (3x - 1) = 1 + 3x$$

$$28. 2(x - 6) + 12 = 3x$$

$$29. 4x - 1 = 8x - 4(x + 3)$$

$$30. \frac{3}{4}(2x + 5) - 1 = 3x$$

$$31. \frac{3x-1}{4} - \frac{2x+5}{6} = \frac{2}{3}$$

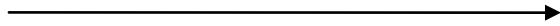
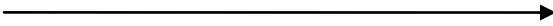
$$32. 0.1x - .4 = .3x$$

$$33. 0.2(x + 4) - .6 = .35x$$

Solve and graph.

34.  $5m - 2(m + 3) > -11$

35.  $-12x \leq 48 + 4x$



36.  $|x + 4| < 7$

37.  $|3x - 2| + 5 \geq 21$



38. Use an absolute value inequality to describe the set of all numbers that are within 4 units of 9 on a number line.

Solve for the specified variable.

39.  $P = 2(l + w)$  for  $w$

40.  $S = 2\pi rh + 2\pi r^2$  for  $h$

41.  $I = prt$  for  $t$

42.  $W = \frac{q - 3r}{4s}$  for  $r$

Translate each verbal expression into an algebraic expression, equation, or inequality.

43. the sum of three and  $x$

44. seven more than twice  $x$

45. two less than the product of five and  $x$

46. the quotient of four and  $x$ , decreased by eight

47. twelve more than the square of  $x$

48. Two is less than three times the sum of six and  $x$ .

49. The product of five and two less than a number  $x$  exceeds  $x$  by four.

### **C. Lines and Slopes**

Find the slope of each line.

50. with equation  $5x - 3y = 5$

51. through  $(2, -5)$  and  $(1, 3)$

52. with equation  $5x = 7y$

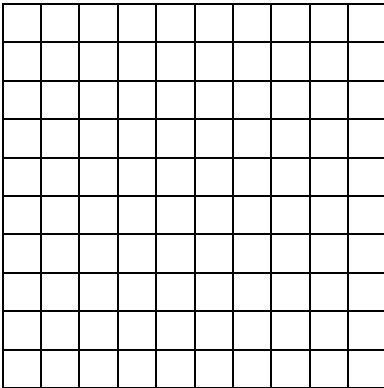
53. parallel to #50

54. with  $x$ -intercept 2 and  $y$ -intercept -1

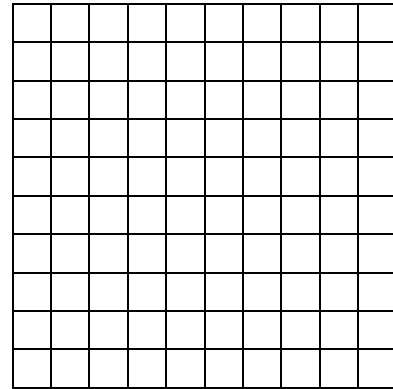
55. with equation  $x = 6$

Sketch each graph on the grid provided.

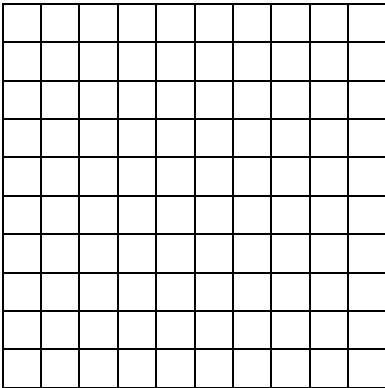
56.  $y = -3x + 7$



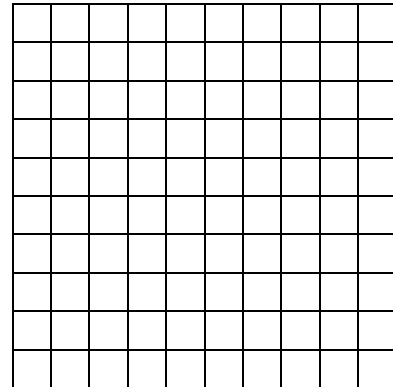
57.  $x - 2 = 3$



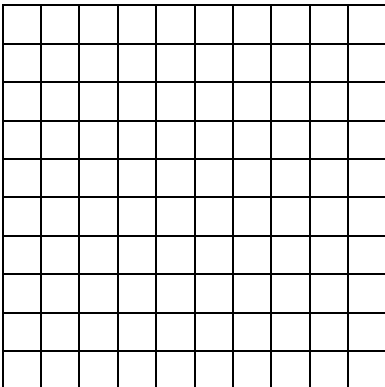
58.  $4x - 5y = 20$



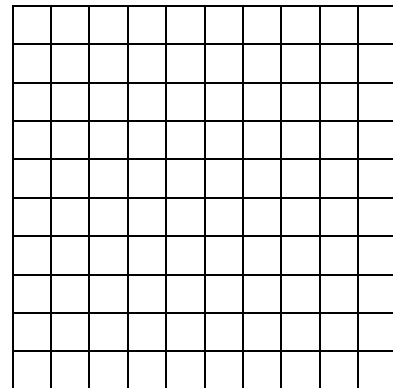
59.  $3x = 4y$



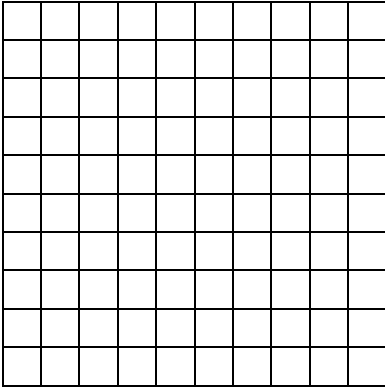
60.  $y = 2.5$



61.  $5x + 2y = -5$



62. the line through  $(-2, 1)$   
with slope  $-3/4$



63. the line with  $x$ -intercept 5 and  
perpendicular to  $2x - 3y = 4$

