Name_____

Summer Algebra I Packet

This packet should help prepare you for Algebra I at Trumbull High School. Please complete these problems before the first day of school.

A TI 84 graphing calculator is required for all math classes at Trumbull High. You may use the calculator for all problems on this packet.

1. Evaluate.

a) $(2 + 5)^2 - (3)(9)$

b) $\left[2-5\left(14-9\right)\right]+2\div2$

c) $\frac{2(4-1)^2}{5^2-9}$

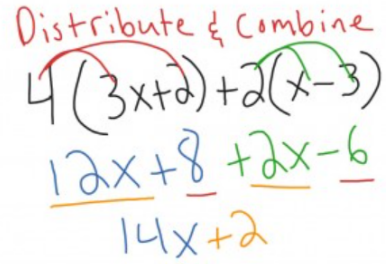
d) $\frac{6^2-3^3}{4-5(8-4)}$

2. Evaluate $3x - 2y$ given that $x = 3,\ y = -4$.

3. Evaluate x^2 given that $x = -5$.

It is important to know the difference between SIMPLIFYING an expression and SOLVING an equation.

Simplifying- no equal sign, need to combine like terms, distribute



4. Simplify the expression. Show all work.

a. $4(x - 5)$

b. $3(x - 4) + 9$

c. $2x + 9y + 8y - 3x$

d. $14 - 5(x + 6)$

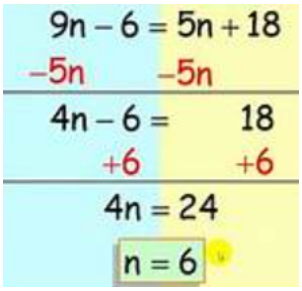
e. $3x + 5 - 6x + 9$

f. $6x + 9 - 6x$

g. $4(x + 6) - 2(x - 5)$

h. $5x - (7x + 1) + 9$

Solving- equal sign, must get variable by itself



6. Solve the equation. Show all work.

a. $-14x + 5 = 47$

b. $50 + 9x = 11x + 24$

c. $12x + 16 = 10 - 3(x - 2)$

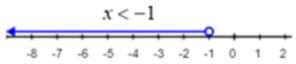
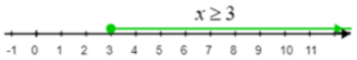
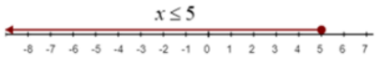
d. $\frac{x}{3} - 5 = -2$

e. $8m - 35 = 5(m - 11)$

f. $\frac{x-3}{2} = 7$

Solving inequalities is similar to equations. Remember when you multiply or divide by a negative, the inequality sign flips.

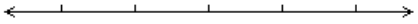
$$-3x+5 \le -16$$
$$-5 \quad -5 \quad \text{Subtract}$$
$$-3x \le -21$$
$$\frac{-3x}{-3} \ge \frac{-21}{-3} \quad \text{Divide by -3, reverse inequality}$$
$$x \ge 7$$

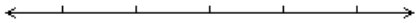
Symbol	Words	Example
>	Greater than	
<	Less than	
≥	Greater than or equal to	
≤	Less than or equal to	

7. Solve the following inequalities. Show work and graph the solutions on the given number lines.

a. $-5x - 2 < 13$

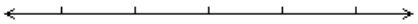
b. $4x + 2 <- 6$

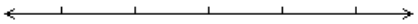




c. $5(x - 2) < -15$

d. $x - 2 < 4x + 7$

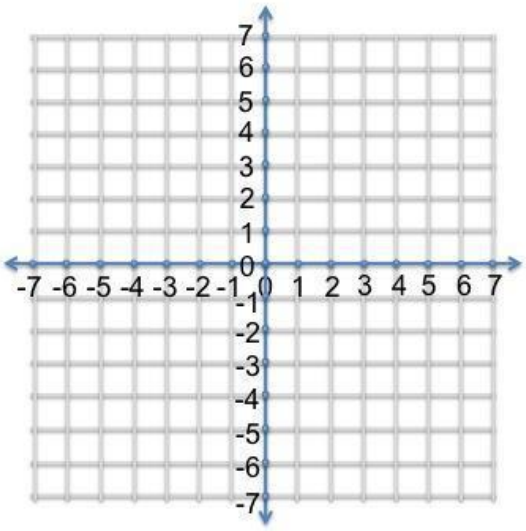




Slope of a line: $m = \frac{y_2 - y_1}{x_2 - x_1}$

Slope-intercept form of a line: $y = mx + b$ m =slope b =y-intercept

8. Graph the line $y = \frac{1}{2}x - 4$



9. Find the slope of the line through $(7,\ 12)$ and $(4, -\ 9)$.

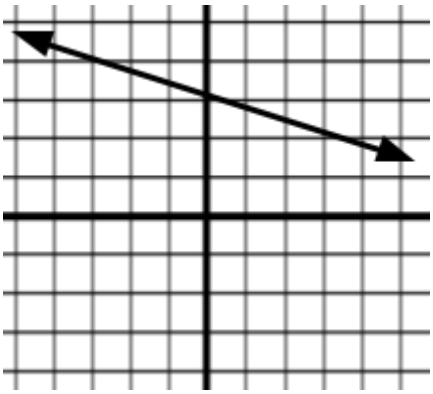
10. Given the line $y = 3x + 5$,

a. Identify the slope.

b. Identify the *y*-intercept

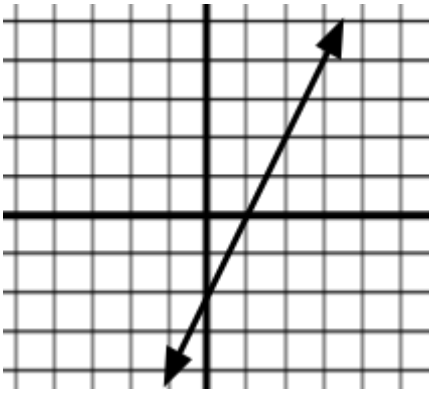
11. Write an equation of a line in slope-intercept form for the lines graphed below.

a.



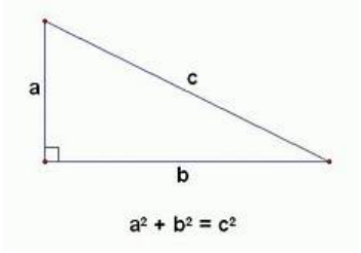
Equation:_____

b.

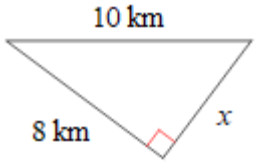


Equation:_____

12. Find the missing side of the triangle using the Pythagorean Theorem.



a.



b.