



THE KNOX SCHOOL

Geometry 2020 Summer Assignment

Directions: You must show all work. All answers should be put in simplest form. Circle your final answers.

Due Date: First day of school! You will be held accountable for this material upon your return to school.

1. Evaluate the algebraic expressions when $x = -3$ and $y = 2$

a. $\frac{2x-y}{x+y}$

b. $\frac{2y^2-2x}{x-2y}$

c. $\frac{x^3-3y}{y^3+3}$

2. Solve the equations:

a. $2(x-3) - 3(x+1) = -8$

b. $\frac{m+9}{5} = \frac{m-1}{3}$

c. $\frac{|8b-4|}{5} = 4$

d. $7(p+3) + 9 = 5(p-2) - 3p$

e. $-4(2x - 5) = -8x - 1$

f. $-9a = 3(2 - 3a) - 6$

3. Solve the inequalities and graph on a number line:

a. $4x - 7 < 8x + 5$

b. $-3x + 1 \leq 16$

c. $-14 < 3x - 5 < 1$



4. Perform the following operations. Write your answers in simplest form.

a. $(4x + 9)(7x - 1)$

b. $(x - 5)(x^2 - 4x + 8)$

c. $\frac{15x^3 - 10x^2 - 20x}{5x}$

d. $(x^2 + 5x - 6) - 2(3x^2 - x + 8)$

5. Factor the following completely:

a. $x^2 + 7x + 12$

b. $4x^4 - 4$

c. $6x^2 - 3x - 84$

6. Determine if (-4) is a solution to:

a. $2x^2 + 7x - 4 = 0$

b. $-2x^2 - 5x = -32$

7. Solve for x:

a. $x^2 - 9x = 0$

b. $x^2 - 9x + 14 = 0$

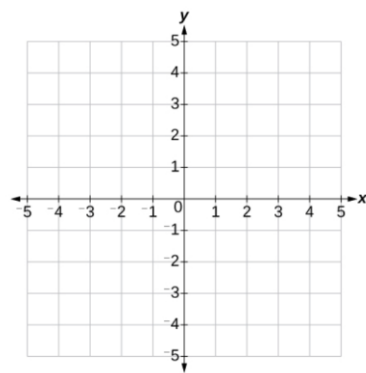
c. $2x^2 + 5x - 12 = 0$

8. Solve for x:

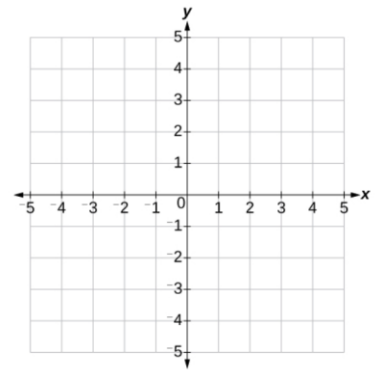
a. $\frac{x-1}{3} = \frac{2x}{5}$

b. $\frac{x+7}{7} = -\frac{2}{x}$

9. Write the equation $2x + 3y = 6$ in slope-intercept form. Identify the slope and y-intercept, and graph.



10. Graph the linear inequality $y < -2x + 4$.



11. Find the slope of the line passing through the points (3, 6) and (6, 8)

12. Write the equation for the line in question 11.

13. Write an equation and solve: A contractor charges a flat fee of \$80 plus \$52 per hour. For a job that is billed at \$340, how many hours did the contractor work?

14. Write an equation and solve: Pat's Limousine Service leases a car for \$325 per month. He makes an average of \$30 per customer and uses approximately \$4.00 in gas per trip. How many trips must he make to break even?

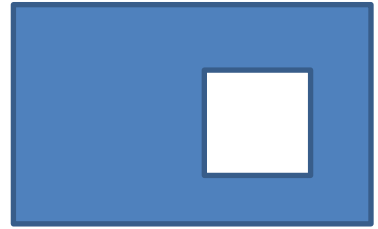
15. Solve the system of equations by substitution or addition method:

a. $2x + y = -2$
 $5x + 3y = -8$

b. $2x + 3y = 6$
 $2y = 5 - x$

16. Simplify. Write the answer with positive exponents only: $(-4x^5y^{-2}z)^2$

17. The large rectangle has dimensions 8 feet x 14 feet. The inside square has a side length of 4 feet. Find the area of the shaded region:



18. Find the surface area of a rectangular prism with dimensions of 8 feet x 5 feet x 7 feet.

19. If the radius of a circle is 5 inches, find the Circumference and the Area of the circle.