

Geometry A Summer Assignment 2019

Geo which means earth and metria which means measure. (Greek)

Congratulations on the completion of Algebra I; NOW it is on to Geometry!!!

This summer assignment contains problems that are considered prerequisites for Geometry A. You should be comfortable solving problems of the types included here in order to move forward with new Geometry A material in the fall.

Although completing this summer assignment before school starts is not mandatory, we **STRONGLY RECOMMEND** that you do. This packet, completed in its entirety, will be due within the first few days of class. You will have an opportunity to ask questions on these problems and techniques prior to the assessment on this material, which will be given during the first week or so of the school year.

If you have any questions regarding this assignment, please send them to kplucinsky@rtnj.org.

Have a wonderful summer! We look forward to class with you next school year.

Sincerely,

The Geometry A Team

“It’s not that I’m so smart, it’s just that I stay with problems longer.”

– **Albert Einstein**

Name _____

Algebra Concepts Review

Please answer all of the questions on a separate sheet of paper.

Evaluate

- $2y + 9x - 7$ when $y = 3$ and $x = 5$
- $-4x^2 - 8x + 9$ when $x = -5$

Solve the equation.

- $\frac{5}{2}(4m + 2) = 35$
- $9(2y + 1) = -6(2 - 3y)$
- $\frac{11-x}{3x+2} = \frac{1}{2}$

Graph the equation. Explain the method you used.

- $-7x - y + 49 = 0$

Write an equation of the line that passes through the given point and has the given slope. Write the equation in slope-intercept form.

- $(1, 8)$, $m = -4$

Graph the line that passes through the given point and has the given slope. Write an equation in slope-intercept form.

- $(-2, -8)$ and $(-1, 0)$

Sketch the graph of the inequality.

- $7y - 2x + 3 < 17$

Use the SUBSTITUTION method to solve the linear system.

- $8x + 4y = -4$
 $2x - y = -3$
- $y = 3x + 3$
 $y = 2x$
- $x + 4y = -1$
 $2x - y = 7$

Solve the linear system using ELIMINATION.

- $5y - 3x = 1$
 $4y + 2x = 80$
- $3x - 4y = 21$
 $4x + 2y = 6$
- $4x + 3y = -2$
 $3x + 2y = -3$

Factor.

- $2x^2 + 28x + 98$
- $3x^2 - 19x + 6$
- $x^2 - 3x - 10$

Find the product.

- $(2k - 9)(2k + 9)$
- $(y - 2)(y + 2)(y - 4)$
- $(x - 4)(x + 2)(x + 1)$

Solve the equation by factoring, finding square roots or using quadratic formula.

- $8x^2 + 6x = 5$
- $\sqrt{y} + 6 = 10$
- $x^2 - 34x - 240 = 0$
- $4x^2 + 11 = 12$
- $-2x^2 + 4x + 6 = 0$
- $x^2 + 7x + 7 = 0$
- $x^2 - x = 2$

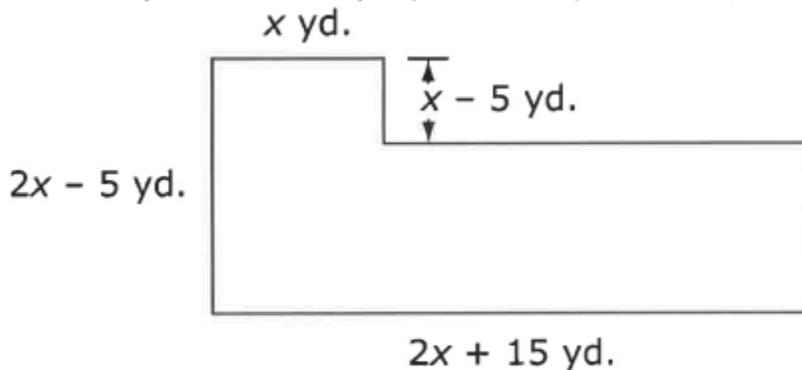
Simplify.

- $[(-2y)^3]^2$
- $\sqrt{150}$
- $\sqrt{48}$
- $\sqrt{6} \cdot \sqrt{20}$
- $2\sqrt{18} - 5\sqrt{2}$
- $3\sqrt{75} + \sqrt{27} - \sqrt{147}$
- $3\sqrt{3} + 9\sqrt{3} - 4\sqrt{3}$
- $5\sqrt{5} + 3\sqrt{36} + 2\sqrt{80}$
- $\frac{\sqrt{9}}{\sqrt{5}}$
- $\sqrt{\frac{9}{64}}$
- $\sqrt{\frac{20}{27}}$

Performance Task 1

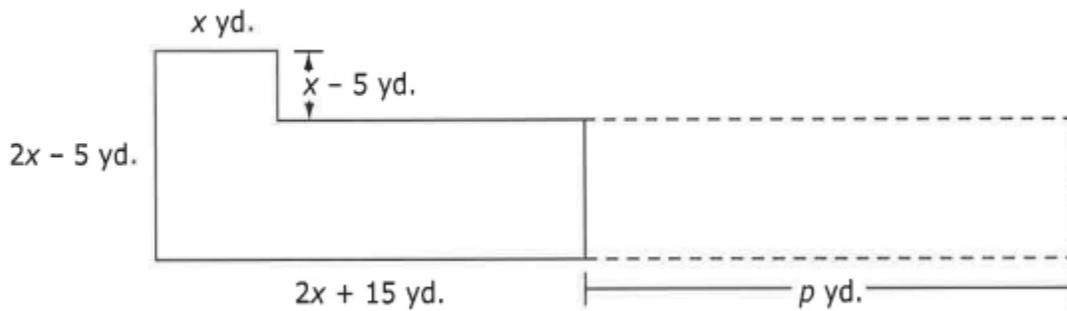
Parking Lot.

A town council plans to build a public parking lot. The outline below represents the proposed shape of the parking lot.



Write an expression for the area, in square feet, of this proposed parking lot. Explain the reasoning you used to find the expression.

The town council has plans to double the area of the parking lot in a few years. They create two plans to do this. The first plan increases the length of the base of the parking lot by p yards, as shown in the diagram below.



Write an expression in terms of x to represent the value of p , in feet. Explain the reasoning you used to find the value of p .

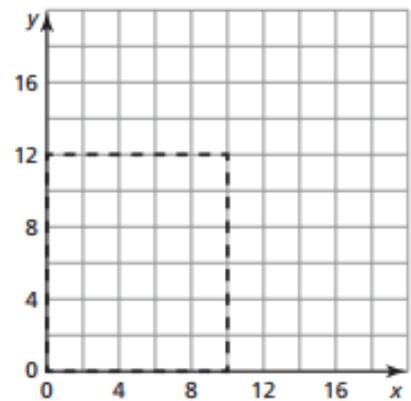
Performance Task 2 Comfortable Horse Stalls

The plan for a new barn includes standard **rectangular** horse stalls. The architect is sure that this will provide the most comfort for your horse because it is the greatest area for the stall. Is that a correct assumption? The following questions will let you investigate.

The budget for your new barn allows for a horse stall with a total perimeter of 44 feet. The stall in the current plans is 10 foot by 12 foot, which is standard for a typical horse stall.

1. a. Explore the options for the dimensions of the stall by completing the table. Then sketch each stall on the coordinate plane as shown for the 10 foot by 12 foot stall.

Length (in feet)	Width (in feet)	Perimeter ($2L + 2W$)	Area ($L \times W$)
5			
6			
7			
8			
9			
10	12	44	120
11			
12			



- b. From your table does a 10 ft x 12 ft stall provide the most area? If not, which size stall does?
2. Now investigate this problem algebraically and graphically.
 - a. Write an equation for A , the area of the stall, in terms of length l and width w .
 - b. Write an equation for the perimeter of the stall in terms of length l and width w .
 - c. Solve the perimeter equation for length l .
 - d. Substitute the expression for length found in part (b) into your equation for area found in part (a). Write your new equation $A(w)$.
3. What rectangular shape has the largest area for a fixed perimeter? Why might barn owners choose to build standard 10 ft x 12 ft barn stalls instead of stalls in this shape?