

**Honors Geometry**  
**Summer Review Assignment**  
2026-2027

Welcome to Honors Geometry! The skills represented in this assignment are crucial to your success in this class. You will be asked to recall and apply these skills throughout the year. It is highly recommended that you complete this packet at the end of the summer to jump-start your brain. Show your work. This assignment will be due on Thursday, September 3rd, 2026. This will be your first grade of the marking period.

**Part 1: Solving Linear Equations.** Write your answer as a fraction, if necessary.

1. $2x + 5 = 11$	2. $x - 3(x - 7) = 4(x - 7) - 2x$
3. $-\frac{x}{8} + 7 = 5$	4. $\frac{2}{3}(9x - 27) + 1 = 37$
5. $\frac{5}{x+3} = \frac{x}{2}$	6. $6 - 2(x + 3) = -2x$

**Part 2: Solving Inequalities.**

1. $4c + 23 \leq -13$	2. $\frac{8}{3}x + 1 > -5$
3. $\frac{a}{12} \geq 8$	4. $7b + 3 \geq -4b + 25$
5. $-3x < 48$	6. $-5w + 1 \leq 8$

**Part 3: Solving Systems of Equations by Elimination or Substitution.** Write your solution as an ordered pair, using fractions if necessary.

1. $2x + y = 21$ $7x - 2y = 90$	2. $11x - 3y = -39$ $6x + 12y = -19$
3. $x - y = 39$ $x + y = 1785$	4. $3x + 4y = 9$ $y = 2 - x$
5. $2y - 3x = 51$ $11x - 7y = -187$	6. $2x + 7y = -20$ $x - 5y = -10$

**Part 4: Simplifying Radicals.** Simplify. No decimals!

1. $\sqrt{80}$	2. $\sqrt{675}$	3. $\sqrt{98x^3y^6}$
4. $\sqrt{243}$	5. $\sqrt{50} \cdot \sqrt{10}$	6. $\sqrt{54a^2b^4c^5}$
7. $\sqrt{7} \cdot \sqrt{7}$	8. $\sqrt{\frac{63}{8}}$	9. $\sqrt{13}^2 + (3\sqrt{2})^2$

**Part 5: Solve Equations Using the Quadratic Formula.** Write your answers using decimals.

1. $x^2 + 5x + 4 = 0$	2. $4x^2 + 8x + 2 = 0$
3. $x^2 - x = 6$	4. $-8x + 3x^2 = -1$

**Part 6: Solve Equations by Factoring.** Write your answer as a fraction, if necessary.

1. $x^2 - 10x - 24 = 0$	2. $24x - 35 = 4x^2$
3. $2x^2 + 9x = 0$	4. $6x^2 = 2(13x + 10)$
5. $-9x^2 + 15x = 4$	6. $3x^2 + 2x = 8$

**Part 7: Simplifying Expressions.** Multiply the polynomials.

1. $\left(\frac{9}{2}x\right)(8x^5)$	2. $(a + 3)(a - 9)$
3. $8y^2(5y^3 - 2y + 2)$	4. $\left(t + \frac{5}{3}\right)^2$

**Part 8: Evaluating Expressions.** Evaluate and simplify. No calculator!

1. $\frac{1}{2}bh$ when $b = 18$ and $h = 2\sqrt{3}$	2. $\sqrt{a^2 + b^2}$ when $a = 12$ and $b = 5$
3. $\sqrt{l^2 + w^2 + h^2}$ when $l = 12$ , $w = 8$ , and $h = 9$	4. $\frac{1}{3}\pi r^2 h$ when $r = 5\sqrt{2}$ and $h = 6$
5. $2\pi r^2 + 2\pi rh$ when $r = 3\sqrt{2}$ and $h = 4\sqrt{2}$	6. $\frac{1}{2}h(b_1 + b_2)$ when $b_1 = 4$ , $b_2 = 10$ , and $h = 5$
7. $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$ when $x_2 = -6$ , $x_1 = 3$ , $y_2 = 17$ , $y_1 = 5$	8. $\frac{ap}{2}$ when $a = 6$ and $p = 24\sqrt{3}$

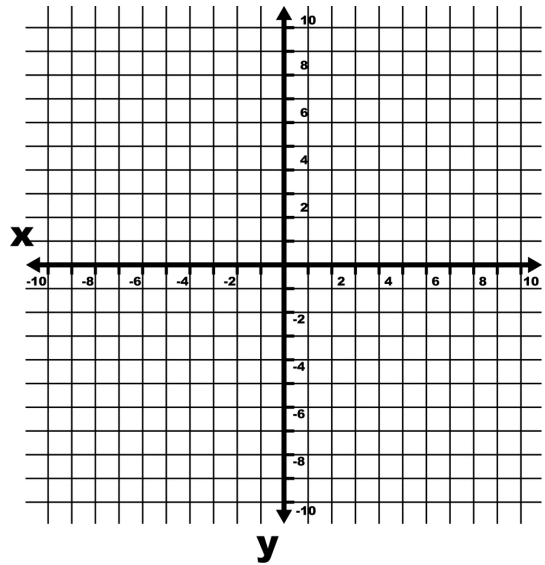
**Part 9: Graphing and Writing Equations of Lines**

1. The equations for 3 lines are given. Graph each line on the grid shown.

a.  $y = 4$

b.  $x = -3$

c.  $y = -\frac{3}{2}x + 6$



2. The equations for 4 lines are given. Graph each line on the grid shown and find the slope of each line.

d.  $x = 2$

Slope = \_\_\_\_\_

e.  $y = 1$

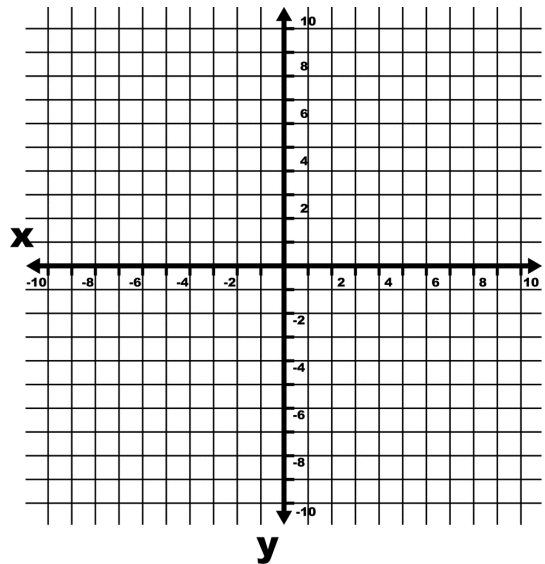
Slope = \_\_\_\_\_

f.  $3x - 4y = -8$

Slope = \_\_\_\_\_

g.  $y - 4 = -2(x + 3)$

Slope = \_\_\_\_\_



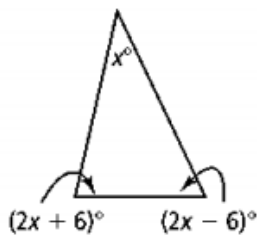
3. Find the x and y intercepts of the line with equation  $2x - 3y = 12$ .

4. Write the equation of each line described below.

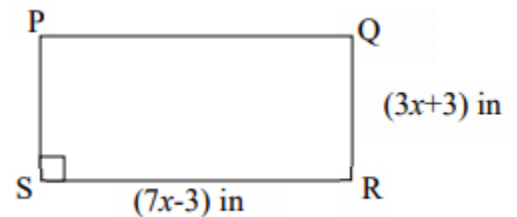
- a. A vertical line that passes through the point  $(2, - 6)$ .
- b. A horizontal line that passes through the point  $(1, - 4)$ .
- c. A line with slope  $- 4$  and y-intercept of 5.
- d. A line with slope of 2 and x-intercept of 3.
- e. A line with slope  $\frac{2}{3}$  that passes through the point  $(-3, 6)$ .
- f. A line that passes through  $(- 5, - 3)$  and  $(10, - 6)$ .

**Part 10: Mixed Geometry Practice**

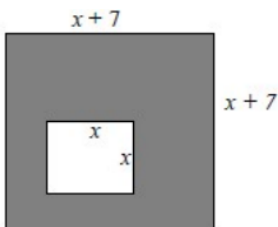
1. Solve for x.



2. The perimeter of rectangle PQRS is 40 inches.



3. What is the simplified expression for the area of the shaded region in the larger of these two rectangles?



- a) Find the value of x.
- b) Find the Area of the rectangle.