

Name: _____

Honors Geometry Summer Work

→ Be sure to show all your work neatly and box your final answer! ←

→ This packet will be collected on the first day of school! ←

→ You will have an assessment within the first week of school on your summer work! ←

Congratulations!! You are currently enrolled in Honors Geometry! This packet contains a review of material you will use frequently in this class. While we review this material as it is encountered throughout the year, we will not have time to spend a large quantity of class time re-teaching this material. If you feel you need extra practice with these topics, you will be expected to see the teacher outside of class.

Your assignment is to do all of the problems in the packet. All work must be shown. Most of this can be done without the use of a calculator. **Show all of your work and highlight or box your answers.** Photocopy your work for your own review. Your original work will be turned in on the first day of school (No exceptions). This assignment will count! The number of points earned will be based on your effort, neatness, and accuracy. Questions will be addressed the first few days of school. An assessment of these prerequisite skills for Honors Geometry will be given on, or soon after, the day school starts.

The following topics are prerequisite skills:

- Simplifying radicals
- Ratios and Proportions
- Distance formula, Midpoint formula, and Slope
- Simplifying Expressions
- Solving Linear equations
- Solving systems of equations (graphing, substitution, and elimination)
- Solving quadratic equations (square roots, factoring, and quadratic formula)
- Problem Solving Skills

Simplifying Radicals

Simplify each radical completely. No decimals!

1) $\sqrt{80}$

2) $\sqrt{675}$

3) $\sqrt{72}$

4) $\sqrt{125x^2}$

5) $\sqrt{40a^4b^5}$

6) $\sqrt{98x^6y}$

7) $\sqrt{5} \cdot \sqrt{10}$

8) $\sqrt{\frac{81}{49}}$

9) $2\sqrt{8} \cdot 4\sqrt{20}$

10) $\sqrt{75} + \sqrt{50}$

11) $\sqrt{8} - \sqrt{18}$

12) $\sqrt{50} - \sqrt{16} + \sqrt{72}$

Ratios and Proportions

Solve for each variable.

1) $\frac{2}{5} = \frac{k}{18}$

2) $\frac{-14}{h} = \frac{-2}{5}$

3) $\frac{4}{9} = \frac{r-3}{6}$

4) $\frac{3x+1}{14} = \frac{5}{7}$

5) $\frac{x-3}{4} = \frac{x+1}{5}$

6) $\frac{2p+5}{p-7} = \frac{8}{9}$

7) Karla is ordering cake for her wedding reception. If one cake will feed 18 people, how many cakes does she need to order to feed 150 people?

8) On a scale drawing of a park, the length of a trail is 12cm from the playground to the pond and 15cm to the parking lot. If the actual length of the trail from the pond to the parking lot is 60m, what is the actual length of the trail between the playground and the pond?

Distance Formula**Distance formula:** _____

Find the distance between the two coordinates given. Simplify if necessary. No decimals.

1) $(-2, 1)$ and $(5, -6)$

2) $(9, 4)$ and $(0, -4)$

3) $(-4, 4)$ and $(-1, -3)$

Midpoint Formula**Midpoint Formula:** _____

Find the midpoint between the coordinates given.

1) $(-9, 5)$ and $(7, -2)$

2) $(\frac{1}{2}, 6)$ and $(1, -5)$

3) $(-5, 0)$ and $(-4, -2)$

Slope**Slope Formula:** _____

Find the slope between the coordinates given.

1) $(4, 5)$ and $(9, 0)$

2) $(7, -8)$ and $(7, -1)$

3) $(9, -2)$ and $(-4, -2)$

Simplifying Expressions

Simplify each expression completely.

1) $(2x^2 + 3 - x) - (2 + 2x^2 - 5x)$

2) $(3 - 5x^3 + 9x) - (x + 2x^3 - 4x^2)$

3) $(3x + 5)(5x - 7)$

4) $(a^2 - 4b^3)^2$

5) $(x + 2)(3x^2 - 6x - 1)$

6) $(5p - 2q)(5p + 2q)$

Solving Linear Equations

Solve each equation for the given variable. Leave answer as simplified fraction if necessary. No decimals.

1) $-6 - 3(2x + 4) = 18$

2) $y - 2(y - 7) = 4(y - 7) - 2y$

3) $-\frac{x}{8} + 7 = 5$

4) $3a + 5 = 3(a - 2)$

5) $\frac{2x-5}{2} = 17$

6) $3p - 3(4 + p) = \frac{3}{4}(3p + 2) - 1$

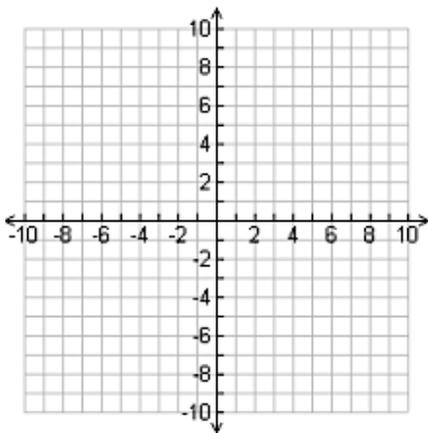
7) $9(3x - 2) = \frac{5}{2}x + 3$

Solving Systems of Equations – Graphing

Solve each system of linear equations by graphing on the graphs provided. Remember your answer should be an ordered pair.

1) $y = -x + 2$

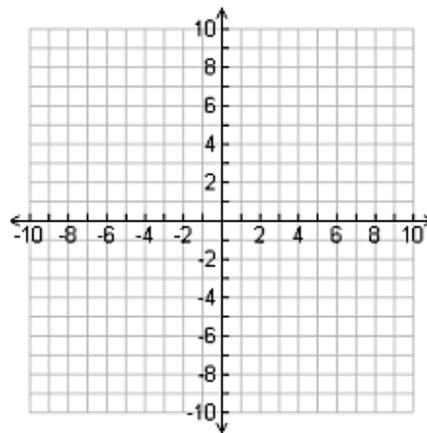
$2y + x = 2$



Solution: _____

2) $y - 2x = 1$

$2y - 4x = 1$



Solution: _____

Solving Systems of Linear Equations – Substitution

Solve the system of linear equations by using substitution. Remember your answer should be an ordered pair.

$$\begin{aligned} 1) \quad & 3y - x = -9 \\ & 5x + 2y = 11 \end{aligned}$$

$$\begin{aligned} 2) \quad & -5x + 3y = 12 \\ & x + 2y = 8 \end{aligned}$$

$$\begin{aligned} 3) \quad & 4x + 3y = 38 \\ & 2x + y = 16 \end{aligned}$$

$$\begin{aligned} 4) \quad & 4x = 6y + 24 \\ & 2x - 3y = 12 \end{aligned}$$

Solving Systems of Equations – Elimination

Solve each systems of equations by using elimination. Remember your answer should be an ordered pair.

$$\begin{aligned} 1) \quad & -3x + y = 7 \\ & 3x + 2y = 2 \end{aligned}$$

$$\begin{aligned} 2) \quad & 3x + 4y = -1 \\ & -9x - 4y = 13 \end{aligned}$$

$$\begin{aligned} 3) \quad & -6x - 8y = -28 \\ & 9x + 5y = -14 \end{aligned}$$

$$\begin{aligned} 4) \quad & 3x + 8y = 81 \\ & 5x - 6y = -39 \end{aligned}$$

$$\begin{aligned} 5) \quad & -5 + \frac{1}{2}y = \frac{3}{8}x \\ & \frac{1}{4}x + \frac{3}{2}y = 4 \end{aligned}$$

$$\begin{aligned} 6) \quad & 5x - 4y = 9 \\ & 10x = 8y + 14 \end{aligned}$$

Solving Quadratic Equations

Solve each quadratic equation completely.

1) $x^2 + 5x + 4 = 0$

2) $x^2 - x = 6$

3) $81x^2 = 49$

4) $2x^2 - x - 21 = 0$

5) $3x^2 - 12 = 0$

6) $x^2 + 9 = 10x$

7) $x^2 + 15x = -36$

8) $4x^2 + 50 = -150$

9) $9x^2 - 15x = -4$

10) $24x - 35 = 4x^2$

11) $x^2 + 7x = 30$

12) $5m^2 + 100 = 200$

Use the quadratic formula to solve the following quadratics.

1) $-8x + 3x^2 = -1$

2) $4x^2 + 8x + 2 = 0$

3) $16y^2 - 2y = 3$

Problem Solving Skills

Solve each problem. Show all your work.

1) You are riding your bicycle. It takes you 28 min to go 8 miles. If you continue traveling at the same rate, how long will it take you to go 15 miles?

2) The perimeter of a pool table is 30 feet. The table is twice as long as it is wide. What are the dimensions of the pool table?

3) You want to frame a picture that is 5in by 7in with a 2.5 inch-wide frame.

a. What is the perimeter of the pictures? What is the perimeter of the outside edge of the frame?

b. What is the area of the picture? What is the area of the frame?

4) Your teacher is giving you a test worth 100 points containing 40 questions. There are two-point and four-point questions on the test. How many of each type of question are on the test?

5) Are $(2, 9)$ and $(-3, -6)$ both on the line $y = 4x + 6$? If not, find an equation for the line that does pass through both points.

6) Jenny has some coins in his pockets consisting of dimes, nickels, and pennies. She has two more nickels than dimes, and three times as many pennies as nickels. How many of each kind of coins does she have if the total value is 52 cents?

7) A blueprint is 1 in: 12ft. The width of a building is 48 feet. What is the width of the building on the blueprint?

8) The length of a rectangle is 4 in. greater than the width. The perimeter of the rectangle is 24 in. Find the dimensions of the rectangle.

9) Determine which sides, if any, of the figures are parallel, perpendicular, or neither.
Rectangle BACD has coordinate $B(-4, -3)$, $A(-1, -7)$, $C(3, -4)$, and $D(0,0)$.

10) Determine the circumference of a circle, if the circle has an area of $36\pi \text{ cm}^2$.