

# Arlington High School

## Honors Geometry Summer Packet

### **DUE THE FIRST DAY OF SCHOOL**

This summer packet is for all students enrolled in Honors Geometry for the 2017-2018 school year. The entire packet is due the first day of school. The problems in this packet are designed to help you review topics that are important to your success in Honors Geometry. There will be a test on Friday, August 11. If you need assistance after turning in the packet, please see your teacher after school on Tuesday or Thursday. **You will NOT be allowed to use a calculator on the Test.**

We will be using graphing calculators throughout the course. If you do not own a graphing calculator it is **recommended that you purchase your own calculator**. We recommend purchasing the TI-84 Plus. **Do not buy** a TI-89 because they are not allowed in class or on the ACT.

Follow the directions in the packet and complete all the problems, neatly showing all of your work. You may attach your work on a separate sheet of paper if necessary. You will not be given credit for this packet if no work is shown. You should be able to complete the packet WITHOUT the use of a calculator. This packet will count as part of your first quarter Honors Geometry grade.

If you have forgotten how to do any of the problems in the packet, use the following websites:

[www.glencoe.com](http://www.glencoe.com)

[www.wolframalpha.com](http://www.wolframalpha.com)

[www.regentsprep.org](http://www.regentsprep.org)

[www.purplemath.com](http://www.purplemath.com)

[www.khanacademy.org](http://www.khanacademy.org)

We look forward to meeting you and working with you in the Fall.

Enjoy your summer!

**HONORS GEOMETRY**  
**Summer work**

NAME \_\_\_\_\_

DATE \_\_\_\_\_

Class Period \_\_\_\_\_

**If you want full credit, you must show ALL WORK!!**

**Writing Linear Equations**

**Write the slope-intercept form of the equation of each line.**

1.  $3x - 2y = -16$

2.  $13x - 11y = -12$

3.  $4y - y = 1$

4.  $6x + 5y = -15$

**Write the slope-intercept form of the equation of the line through the given point with the given slope.**

5. through  $(-2, 5)$ ;  $m = -4$

6. through  $(3, 5)$ ;  $m = \frac{5}{3}$

**Write the equation of a line in point-slope form with the given conditions. Then, express your final answer in slope-intercept form.  $\parallel$  = parallel and  $\perp$  = perpendicular**

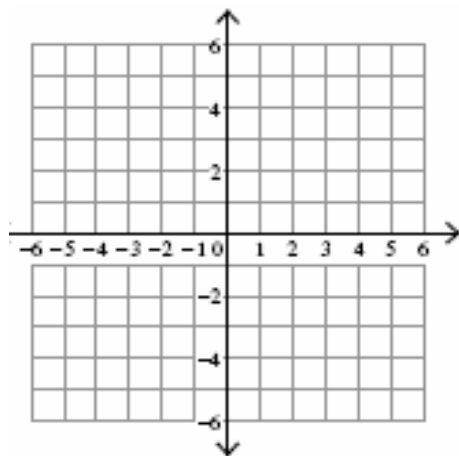
7. through  $(4, 2)$ ,  $\parallel$  to  $y = 2x - 10$

8. through  $(-3, 7)$ ,  $\perp$  to  $y = -\frac{2}{3}x + 8$

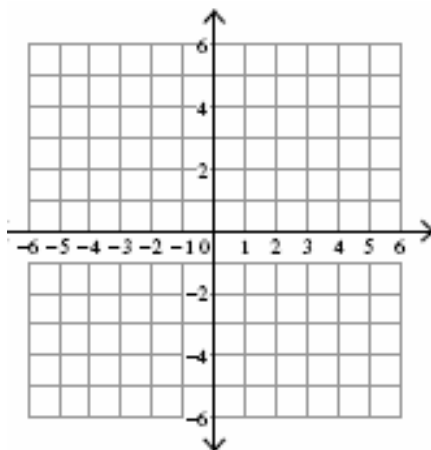
## Graphing Lines

Graph each line using slope-intercept method. If the equation is not in slope-intercept form, first put it in that form and then graph the line using the slope and y-intercept.

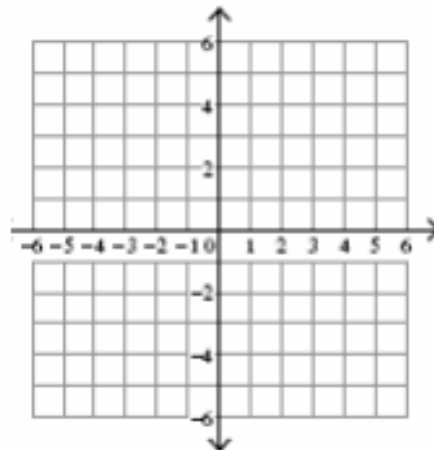
1.  $y = 3x - 5$



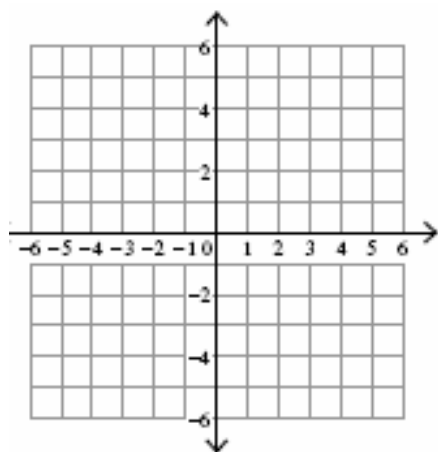
2.  $y = -\frac{1}{4}x$



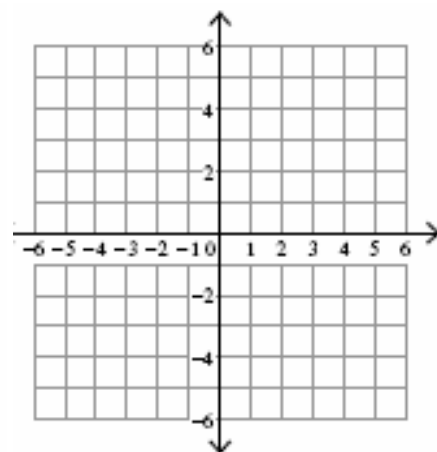
3.  $x = 4$  and  $y = -2$



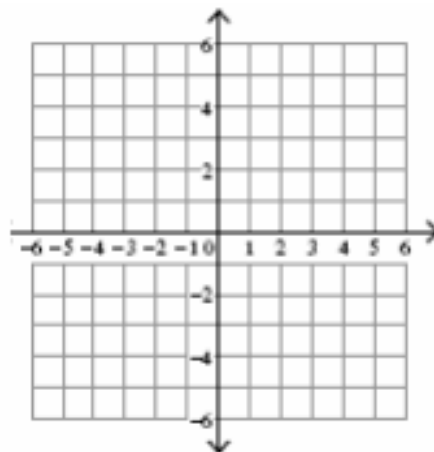
4.  $x - 2y = -4$



5.  $x + 3y = 6$



6.  $3x - 5y = 7$



### Distance Formula

Find the distance between each pair of points using the distance formula or Pythagorean's Theorem.

Distance Formula  $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$       Pythagorean's Theorem  $a^2 + b^2 = c^2$

1. (0, -2) (4, 1)

2. (6, -7) (3, -5)

3. (5, -8) (-8, 6)

4. (7, 3) (-1, -4)

### Midpoint Formula

Use the Midpoint Formula to find the midpoint of the line segment with the given endpoints.

Midpoint Formula  $\left( \frac{x_2 + x_1}{2}, \frac{y_2 + y_1}{2} \right)$

1. (8, -9) (0, 5)

2. (-4, 2) (2, -3)

## Factoring

**Factor each expression. These trinomials are in the form  $ax^2 + bx + c$ .**

1.  $n^2 - 11n + 10$

7.  $5n^2 + 10n + 20$

2.  $n^2 + 4n - 12$

8.  $a^2 - a - 90$

3.  $b^2 + 16b + 64$

9.  $5v^2 - 30v + 40$

4.  $x^2 - 4x + 24$

10.  $4k^2 - 4k - 8$

5.  $a^2 + 11a + 18$

11.  $3p^2 - 2p - 5$

6.  $n^2 - 5n + 6$

12.  $3n^2 - 8n + 4$

## Solving Equations

**Solve each equation. Some equations will require factoring.**

1.  $12(t + 2) = 4 - (3 + t)$

2.  $-8x^2 = -512$

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

4.  $(4k + 5)(k + 1) = 0$

5.  $x^2 - 11x + 24 = 0$

6.  $6n^2 - 18n - 18 = 6$

7.  $3r^2 - 16r - 7 = 5$

8.  $8x^2 + 21 = -59x$

9.  $3\frac{1}{3}x - 2 = -4(x + 7)$

10.  $\frac{3}{x+2} = \frac{7}{5x-1}$

11. Solve for y:  $3y + z = am - 4y$

**Simplifying Radicals**

**Examples**  $\sqrt{25} = 5$ ;  $\sqrt{50} = \sqrt{25}\sqrt{2} = 5\sqrt{2}$ ;  $\sqrt{18x^3} = \sqrt{9}\sqrt{2}\sqrt{x^2}\sqrt{x} = 3 \cdot \sqrt{2} \cdot x \cdot \sqrt{x} = 3x\sqrt{2x}$

**\* Another strategy is to make a factor tree!!****Simplify each radical expression. Leave your answers in simplest radical form.  
NO DECIMALS!!!!**

1.  $\sqrt{28}$

2.  $\sqrt{75}$

3.  $\sqrt{162}$

4.  $\sqrt{3} \cdot \sqrt{6}$

5.  $\sqrt{5} \cdot \sqrt{10}$

6.  $\sqrt{128c^2}$

7.  $4\sqrt{10} \cdot 3\sqrt{6}$

8.  $\sqrt{3x^2} \cdot 5\sqrt{3x^4}$

**FOIL****Simplify each expression by using FOIL.**

**Make sure you have the following memorized:**

The distance formula

The midpoint formula

Pythagorean Theorem

Area formulas for parallelogram, circle, and triangle

Circumference formula

Perfect squares from 1-20