

Students Enrolled in Algebra II or Honors 2020 – 2021

Summer Packet

Name: _____

This packet is to help you review various topics that are considered to be prerequisite knowledge upon **entering Algebra II**. In order to ensure that the good skills that you developed in your Algebra I and Geometry courses do not disappear this summer, working on this packet is **highly** recommended over the summer. (A good habit would be to do **at least one** math problem every day.) Enjoy your summer, but be sure to come prepared with the necessary knowledge to continue on into Algebra II next year. There will be a **skills quiz** on these topics in the fall.

I. Linear Equations

Solve each equation for the indicated variable.

1. $b - 16 = 20$

2. $5 - 2y = 15$

3. $\frac{k}{5} - 6 = 2$

4. $-30 = \frac{n}{3}$

5. $0.2(7 + 2t) = 0.4t + 1.4$

6. $7 = \frac{91}{d}$

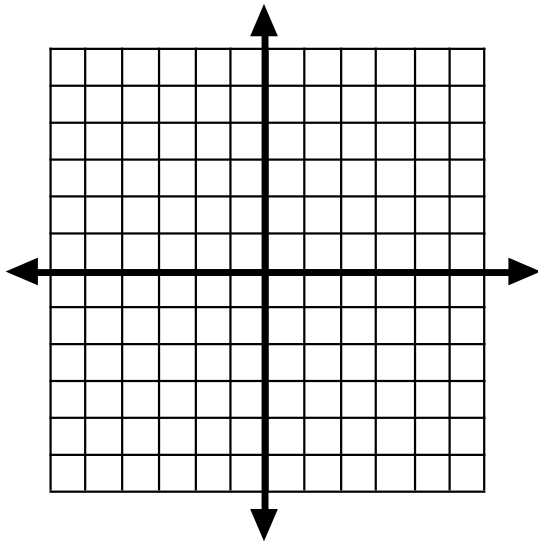
7. Write the equation in slope-intercept form of the line with slope 5 and y-intercept -9 .

8. Write the equation in slope-intercept form of the line with slope $-\frac{1}{2}$ that passes through the point $(6, 4)$.
9. Write the equation in slope-intercept form of the line that passes through $(1, 1)$ and $(-5, 3)$.
10. Write the equation of the line in STANDARD FORM (with integer coefficients) that passes through $(1, 27)$ and $(-2, 12)$.
11. Write the equation of the line that passes through $(-4, 1)$ and $(2, 3)$.
12. Write the equation of the vertical line through $(-1, 4)$.
13. Find the slope of the line that is perpendicular to $y = \frac{2}{3}x - 4$.
14. Find the slope of the line that is parallel to $y = \frac{2}{3}x - 4$.

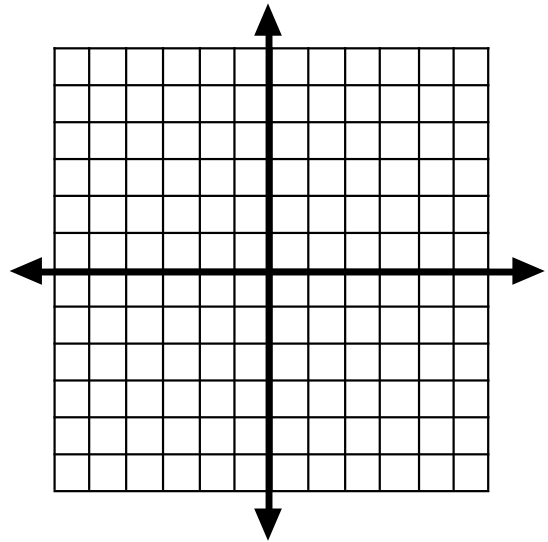
15. Write the equation of a line that contains the point $(2, -4)$ and is parallel to $y = 5 - 3x$. Use point-slope form of an equation. (Honors only)

16. Write the equation of a line that contains the point $(4, 5)$ and is perpendicular to $-2x - 8y = 16$. Use point-slope form of an equation. (Honors only)

17. Sketch the graph of $y = \frac{1}{3}x - 4$.



18. Sketch the graph of $3x + 2y = 6$



II. Systems Show all work for the following problems.

1. Solve by substitution:
$$\begin{cases} x = 7 - 2y \\ 2x + y = 5 \end{cases}$$

2. Solve by elimination/linear combinations:
$$\begin{cases} 9x + 3y = 3 \\ 3x + 8y = -17 \end{cases}$$

3. Solve by any method:
$$\begin{cases} y = -4x - 1 \\ y = 2x + 3 \end{cases}$$

III. Simplifying Simplify each as much as possible, use simplest radical form when necessary.

1. $\frac{2}{3} + \frac{3}{5}$

2. $\frac{2}{6} \cdot \frac{3}{8}$

3. $\frac{9}{10} \div 3$

4. $\sqrt{180}$

5. $\sqrt{40}$

6. $\sqrt{648}$

7. $\frac{2}{\sqrt{7}}$

8. $\frac{6\sqrt{3}}{\sqrt{11}}$

9. $\frac{\sqrt{5}}{4\sqrt{8}}$

IV. Quadratics

1. Solve each quadratic equation by factoring:

a. $x^2 - 2x - 8 = 0$

b. $x^2 + 8x + 15 = 0$

c. $x^2 - x = 12$

d. $6x^2 + x - 2 = 0$

e. $6t^2 - 4t - 16 = 0$

2. Solve each quadratic equation by using the quadratic formula, leave the solution in simplest radical form. (Honors only)

a. $x^2 - 5x = -4$

b. $3x^2 = -x + 5$

3. Solve using the quadratic formula, leave the solution in simplest radical form. (Honors only)

$$x^2 - 4x - 7 = 0$$

V. Proportions Solve each proportion.

1. $\frac{3}{z} = \frac{1}{8}$

2. $\frac{3}{14} = \frac{c-2}{21}$

3. $\frac{3}{m} = \frac{7}{m+4}$

4. $\frac{x}{6} = \frac{30}{x}$

5. $\frac{n+4}{3} = \frac{-3}{n-2}$