

Honors Algebra 2
Summer Math 2021

DUE: August 11, 2021 (First Full Day of School)

In order to better prepare you for the concepts taught next year in Honors Algebra II, I have put together a set of review worksheets for you to complete over the summer. The purpose of this packet is to keep fresh in your mind the skills that you have learned so far and to better prepare you for some of the concepts that we will be learning next year. There are 7 sections to be completed and about 10 weeks to complete them. I do not recommend completing them all in one sitting nor trying to complete all in the first week of summer break or the last.

The seven sections are as follows:

- Review Sheet 1 – Solving equations and inequalities**
- Review Sheet 2 – Functions, function notation, composition of functions**
- Review Sheet 3 – Linear equations including slope, $y = mx + b$**
- Review Sheet 4 – Systems of equations and inequalities**
- Review Sheet 5 – Laws of exponents, exponential functions (growth and decay)**
- Review Sheet 6 – Polynomials, adding, subtracting, distributing/FOIL, factoring**
- Review Sheet 7 – Quadratics**

**** Make sure to show all of your work on the worksheets to receive full credit.** If you are not able to complete all work on the worksheets, work ALL on separate sheets of paper clearly labeled with the Review Section #.**

These are all topics that have been taught in previous years. If you have forgotten the material or are unsure that you have learned it, I expect you to take the time to search for youtube videos or other videos to refresh your memory.

The packets will count toward your homework average for the first quarter. You will be assessed on this material within the first full week of school in the fall (You will receive a quiz grade for the first quarter). We will have time in class the first week of school to answer any questions you might have before you have a quiz over this material.

Hope you all have a wonderful summer and I look forward to seeing you in the fall!
Mrs. Clayton

Review Section 1: Solving Equations and Inequalities.

DIRECTIONS: Solve for x. Graph the inequalities. SHOW WORK. Graph solutions on a #line.

1) $12 - x + 15 - 8x < 5 - 7(18 - 4x)$

2) $-\frac{3}{2}x - 14 > -1$

3) $-4x - \frac{5}{6} \geq -8$

4) $16 = 2 - \frac{2x + 14}{5}$

DIRECTIONS: Solve for x. SHOW WORK.

5) $x + 3 - (6 - 15x) = 12(6x - 4) - 3x + 4$

6) $4x - 10 + 14x - 17 = 6(3x - 5)$

7) $\frac{2}{3}x - \frac{1}{7} = \frac{2}{5}(3x + 4\frac{1}{4})$

8) $\frac{3x - 2}{5x} = \frac{6}{11}$

9) $\frac{15}{x} = 7$

10) $\frac{3}{4}(x - 9) - (4 + 5x) > 11 - 7x$

Review Section 2: Functions, Function notation, and Composition of Functions.

DIRECTIONS: In examples 1 to 7, suppose $f(x) = 3x^2 - 4$, $g(x) = 5x + 1$, and $h(x) = (x - 5)^2$. Find each of the following. SHOW WORK. # 5 and 6 are the most difficult. Give it your best!

1. $f(-4)$

2. $g(-6)$

3. $h(f(7))$

4. $f(2x - 1)$

5. $-3g(f(h(-1)))$

6. $g(x - 2) - f(x + 1)$

7. $\frac{h(10)}{g(-2)}$

8. If $g(x) = -34$, then find x .

Review Section 3: Functions, Function notation, and Composition of Functions.

DIRECTIONS: For 1-4, find the slope of the line containing the given points. SHOW WORK.

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

2) $(4, -15), (-9, -11)$

3) $(-7, -11), (-7, 4)$

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

DIRECTION: For 5-10, write the equation of the line under the given circumstances. Write the equation of the line in whichever form is asked in the question. SHOW WORK.

5) slope = -4 , passes through $(-7, 5)$
(answer in Slope-intercept Form)

6) passes through $(12, -4), (-6, 7)$
(answer in Standard Form)

7) passes through $(8, -3), (8, 5)$
(answer in Slope-intercept Form)

8) Is parallel to $y = -8x + 3$ and passes through $(5, -2)$
(answer in Standard Form)

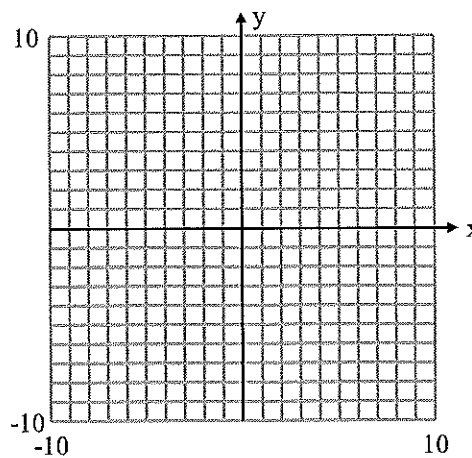
9) Is perpendicular to $5x - 2y = 19$ and has the same x-intercept as $y = 6x - 27$. Answer in Slope-intercept Form.

10) Is parallel to $y - 5 = 7(x + 1)$ and has the same y-intercept as $8x + 3y = 17$. Answer in Standard Form.

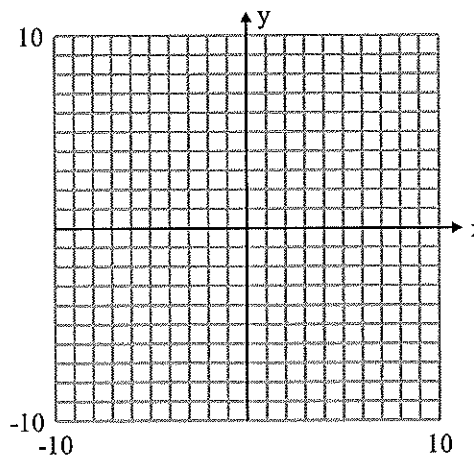
11) The point $(3, y)$ is on the line which passes through the points $(5, -3)$ and $(2, 9)$. Find the value of y .

DIRECTIONS: For 12-15, determine the slope and y-intercept for each line. Also, graph the line. SHOW WORK.

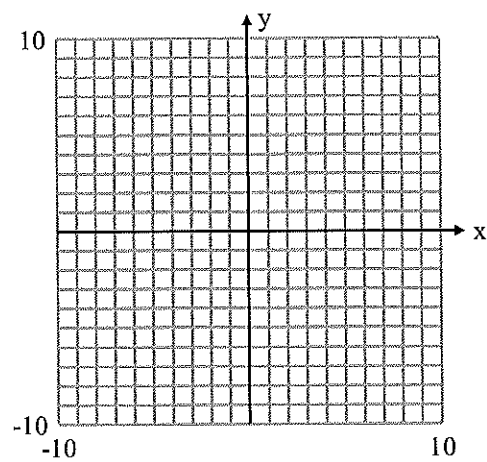
12) $y = -\frac{5}{7}x + 4$



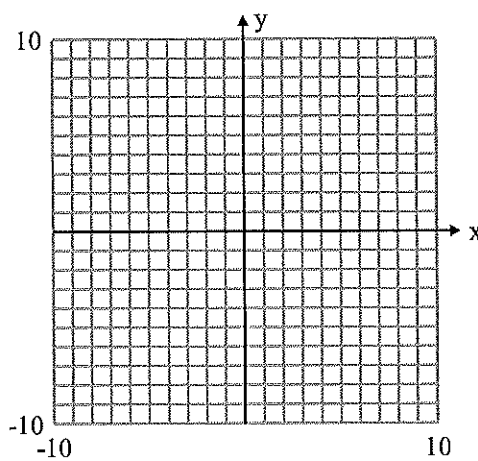
13) $(-5, 8), (-2, 2)$



14) $y+5=-4(x-3)$



15) $3x-5y=-9$



Review Section 4: Systems of Equations and Inequalities.

DIRECTIONS: Solve the system for x & y. SHOW WORK. use Elimination or substitution.

1) $y = -4x + 2$
 $3y + 2x = -1$

2) $4x + 2y = 34$
 $10x - 4y = -5$

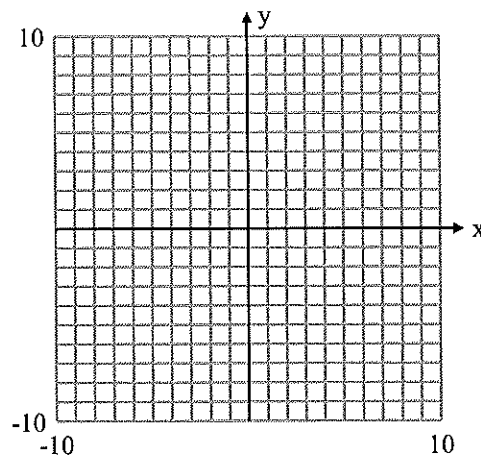
3) $3x = \frac{1}{3} - y$
 $2x - 3y = \frac{8}{3}$

4) $\frac{6}{3} = \frac{y-4}{x}$
 $-y = -2x + 4$

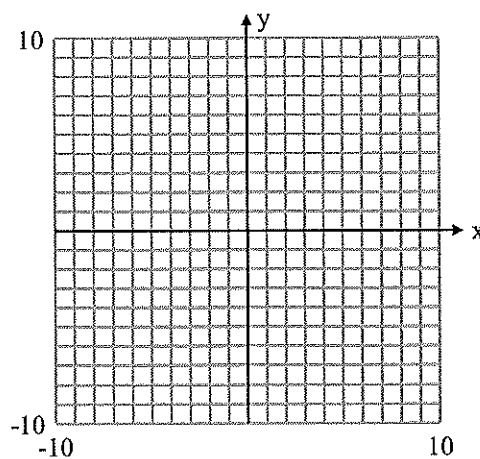
5) $5x - 3(y + 7) = 11$
 $18y - 3x = 4x - 3$

DIRECTIONS: Solve the system of inequalities by graphing.
SHOW WORK.

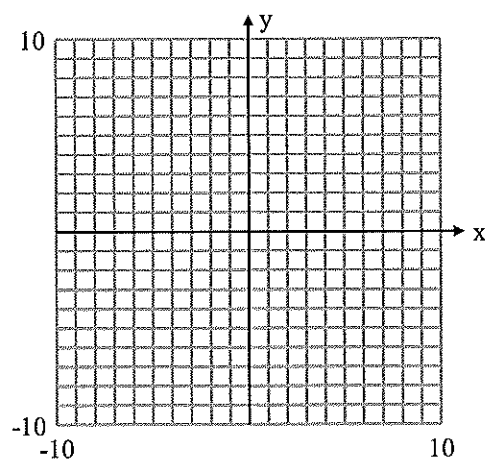
$$1) \begin{cases} y < -\frac{2}{3}x + 5 \\ 3x - 2y \geq -6 \end{cases}$$



$$2) \begin{cases} x - y \leq -1 \\ 2x + 2y < 10 \end{cases}$$



$$3) \begin{cases} y < 5 \\ x \leq -2 \end{cases}$$



Review Section 5: Laws of Exponents.

DIRECTIONS: Simplify each expression. Write your answer using only positive exponents. SHOW WORK.

$$1) \left(\frac{25x^4y^3z^4}{10x^2y^3z^4} \right)$$

$$2) \left(\frac{81x^{10}}{16y^8} \right)^{-1}$$

$$3) \frac{14d^{-3}b^8c^2}{21c^{10}b^{13}d^{-3}}$$

$$4) (5^3)(5^5)(5^2)$$

$$5) \left(\frac{-8x^{-3}y}{4y^4z^{-11}} \right)^3$$

$$6) (6x^4y^2)^2(a^2b^2)^4$$

$$7) x(x^5)^{-6}$$

$$8) (12a^{-5}b^6)(-6ab^{-4})^3$$

Review Section 6: Polynomials.

DIRECTIONS: Simplify each expression. SHOW WORK.

1) Combine like terms for $3x^2 + 9x - 7x^2 + 12 - x^2$

2) Multiply $(3x - 4)(2x + 9)$

3) Multiply $(2x + 9)^2$

4) Multiply $(5x - 7)(6x^2 - x + 4)$

5) Simplify $(4 - 3x)(3x^2 + 9x - 8) + (3x + 1)(7x - 5)$

6) Subtract: $(13x - 5x^2 + 6) - (14x^2 - 3x + 2)$

DIRECTIONS: Factor the following expressions.

1) $x^2 - 10x + 24$

2) $8x^2 - 29x - 12$

3) $49x^2 - 64$

4) $16x^2 - 8x + 1$

Review Section 7: Quadratics.

DIRECTIONS: Solve each of the following. **SHOW ALL WORK.**

1) $x^2 + 8x + 7 = 0$

2) $x^2 - 25 = 0$

3) $3x^2 = 33x$

4) $12x^2 - 8x = -2 - 3x$

5) $-8x^2 + 5x = 4$

6) $9x^2 = 6x - 1$

7) $6x^2 - 10x = 3x - 5$

8) $3x^2 + 10x + 1 = 0$