

**Clearview Regional High School District  
2017 Summer Assignment Coversheet**

<b>Course:</b>	Advanced Algebra II
<b>Teacher(s):</b>	Karen Hitchner, Colleen Senor
<b>Due Date(s):</b>	9/8/17
<b>Purpose of Assignment:</b>	To review prerequisite algebra skills.
<b>Description of Assignment:</b>	This assignment is strongly recommended for all students entering Advanced Algebra II. The purpose of this packet is to review previously learned algebra skills that are necessary for success in Algebra II. Students should complete all problems and show all necessary work.
<b>New Jersey Student Learning Standards (Content) covered:</b>	Functions: F-IF.9, F-IF.A1, F-IF.A2, F-BF.1 Algebra: A-APR.1, A-CED.1, A-REI.1, A-REI.3, A-REI.10, A-SSE.1a, A-SEE.2, A-SSE.3 Number and Quantity: N-RN.A.2
<b>Grading/Use of Assignment: Category/Weight for Q1:</b>	2 Homework Assignment Grades
<b>Specific Expectations:</b>	Students should show all work necessary to complete each problem.
<b>Where to Locate Assignment:</b>	Clearview Website
<b>Teacher Contact Information:</b>	Mary Marks Mathematics Supervisor marksma@clearviewregional.edu
<b>Additional Help/Resource(s):</b>	<b>Algebra 1 notes from previous courses</b> <b>The Virtual Mathlab:</b> Offers free online tutorials for Beginning Algebra, Intermediate Algebra, College Algebra and also for the Accuplacer and the GRE assessments. It hosts many high-quality video tutorials on these subjects. <a href="http://www.wtamu.edu/academic/anns/mps/math/mathlab/">http://www.wtamu.edu/academic/anns/mps/math/mathlab/</a> <b>Math.com:</b> A basic math resource for high school math subjects that includes definitions, examples and some games. <a href="http://www.math.com/">http://www.math.com/</a>

## Algebra Review – prep for Algebra II

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	<p><b>Purple Math:</b> A website that hosts detailed tutorials for algebra concepts that range from beginning to advanced. <a href="http://www.purplemath.com/">http://www.purplemath.com/</a></p> <p><b>Math Power:</b> A basic look at pre-algebra and algebra concepts. Includes some video tutorials. <a href="http://www.mathpower.com/">http://www.mathpower.com/</a></p> <p><b>SOS Mathematics:</b> Detailed tutorials on high school math concepts from Pre-Algebra to Calculus. <a href="http://www.sosmath.com/index.html">http://www.sosmath.com/index.html</a></p> <p><b>Algebra Help:</b> An algebra support website that explains common algebra concepts and provides practice templates that grades the student's work. <a href="http://www.algebrahelp.com">http://www.algebrahelp.com</a></p> <p><b>Graphing Calculator Websites/Apps:</b> Desmos.com Wabbitemu (This phone app is exactly like the TI-84's we use in class.) Freegraphingcalculator</p>
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**Simplify each of the following**

1.  $-3x(x^3 - 4x^2 + x - 1) - 2(4 - 2x + 3x^3)$  1. \_\_\_\_\_

2.  $3x^2y - 4x^2 + 2x^2y^2 - 4y^2 + 2x^2y - 5y^2 - 4x^2$  2. \_\_\_\_\_

**Given  $f(x) = 2x - 3$  and  $g(x) = 2 - x + 2x^2$ , complete the following.**

3.  $f(-5)$   
3. \_\_\_\_\_

4.  $g(\frac{1}{2})$   
4. \_\_\_\_\_

**Solve the following equations. Show all work.**

5.  $\frac{1}{2}(4x + 12) = 6(x - 1)$  5. \_\_\_\_\_

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Solve the following equation. Show all work.

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

6. \_\_\_\_\_

7. State the domain and range for  $\{(-30,40), (0,40), (30,20), (20,0)\}$

Domain: \_\_\_\_\_

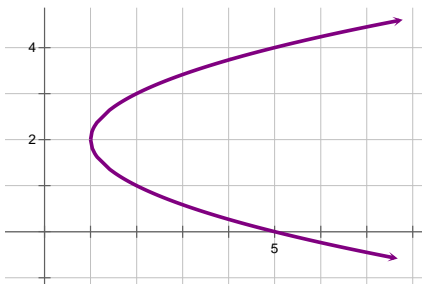
Range: \_\_\_\_\_

8. Does the above set represent a function?

Function: \_\_\_\_\_

9. Does the graph below represent a function? Explain.

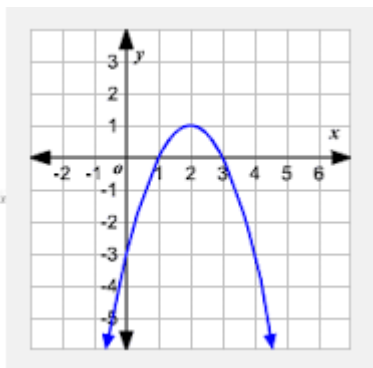
Function: \_\_\_\_\_



\_\_\_\_\_

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10. Find the domain, range, and vertex of the graphed function.



Domain: \_\_\_\_\_

Range: \_\_\_\_\_

Vertex: \_\_\_\_\_

Name each type of function. (linear, quadratic, cubic, exponential)

11. A.  $y = 2x^3 - 4x + 5$  \_\_\_\_\_

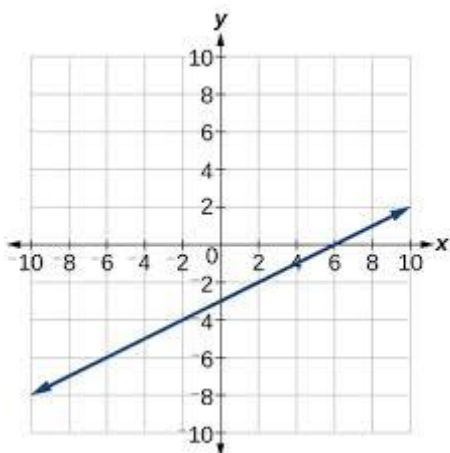
B.  $x + 4y = 15$  \_\_\_\_\_

C.  $f(x) = -3x + 5x^2$  \_\_\_\_\_

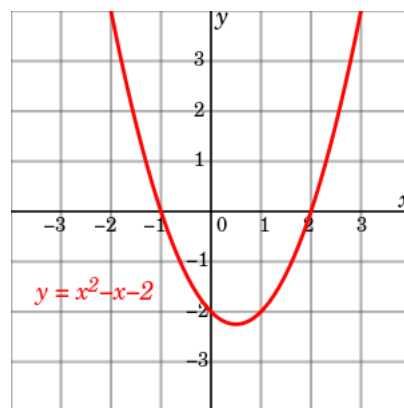
D.  $y = 6^{x+3} - 1$  \_\_\_\_\_

Examine the graph of each function. State all intercepts.

12.



13.



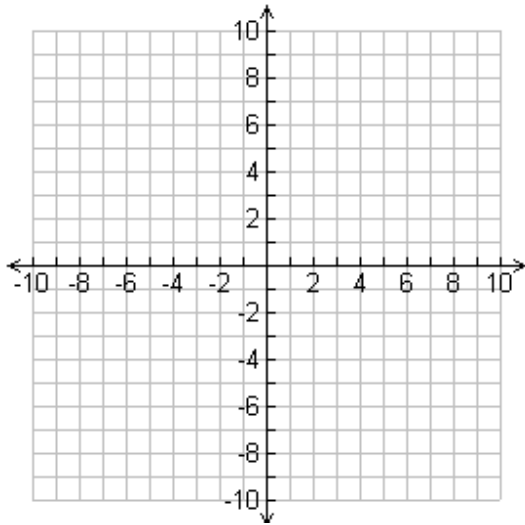
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14. Solve each system of equations or inequalities by graphing.

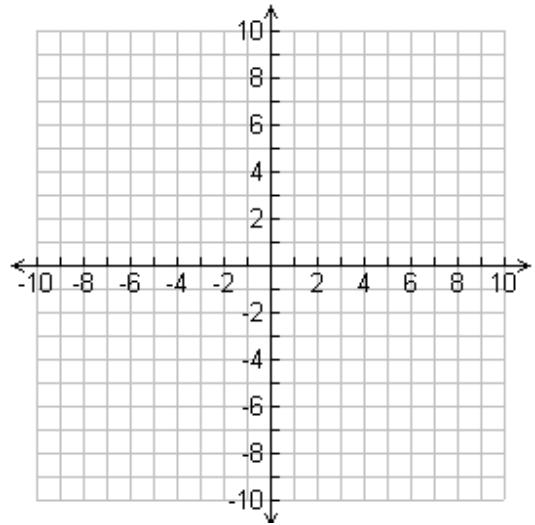
A.  $y = 3x + 5$

$x + y = -3$



B.  $-2x + 3y < 0$

$4x - 2y \geq 8$



Solve each system using either substitution or elimination.

15.  $y = 2x + 8$

$y = 3x - 1$

16.  $2x + 3y = 10$

$2x - y = -14$

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17. **Multiply.**

A.  $(3x - 5)(2x + 7)$

B.  $4(x + 3)(2x - 1)$

C.  $(2x + 4)^2$

D.  $(x - 9)^2$

18. **Identify the GCF of each polynomial. Then, factor it out of the expression.**

A.  $3c^4 - 6c^2 - 24c$

B.  $-2t^6 - 4t^3 + 8t^2$

19. **Simplify each radical expression.**

A.  $\sqrt{200}$

B.  $2\sqrt{125}$

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Below are two examples of factoring quadratic expressions.

$$\text{EX \#1} \quad y^2 + 5y + 6$$

$$=(y^2 + 2y) + (3y + 6)$$

$$=y(y + 2) + 3(y + 2)$$

$$=(y + 2)(y + 3)$$

$$\text{EX \#2} \quad 2w^2 + 13w + 15$$

$$=(2w^2 + 10w) + (3w + 15)$$

$$=2w(w + 5) + 3(w + 5)$$

$$=(2w + 3)(w + 5)$$

20. After reviewing the factoring examples above, factor the following quadratic expressions.

A.  $x^2 + 11x + 24$

B.  $2r^2 + r - 15$

C.  $n^2 - 8n + 16$

D.  $x^2 - 81$



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21. Use the exponent rules at the right to simplify each expression.

A.  $x^2 \cdot x^4$

B.  $\frac{x^{10}}{x^5}$

C.  $(2x)(3x)^2$

D.  $(10x)^0$

E.  $(-4x^2y^4)^3$

F.  $\left(\frac{16x^6}{4x^2}\right)^2$

G.  $x^{-2}y^{-3}$

H.  $a^4b^{-5}c$

$$a^m \times a^n = a^{m+n}$$

$$\frac{a^m}{a^n} = a^{m-n}$$

$$(a^m)^n = a^{mn}$$

$$a^{-m} = \frac{1}{a^m}$$

$$a^1 = a$$

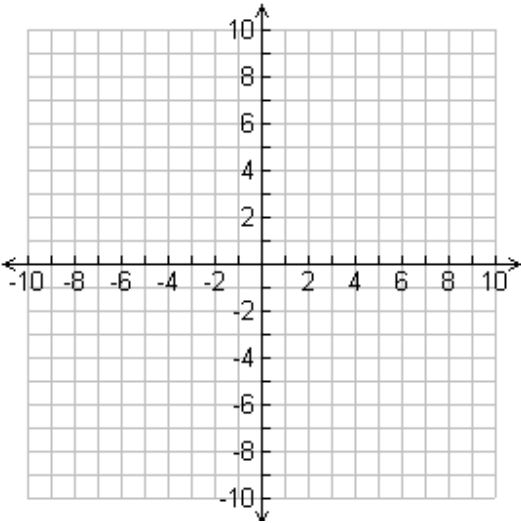
$$a^0 = 1$$

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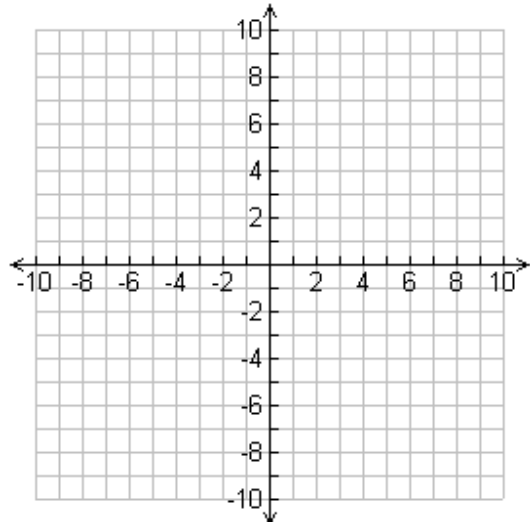
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Graph each absolute-value function.

22.  $y = |x|$



23.  $y = |x - 3| + 2$



24. Describe the graph of  $y = |x|$  compare to the graph of  $y = |x - 3| + 2$ ? Describe how they are alike and how they are different?