

Algebra 1 Review Practice Test

1.) Sketch a graph giving all of the key features below that apply.

- Slope
- X-intercept
- Y-intercept
- Transformations
- Vertex
- Domain and range

a.) $f(x) = 5$

b.) $x = 2$

c.) $2x - 4y = 2$

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

e.) $y - 7 = -2(x + 4)$

f.) $f(x) = \frac{1}{2}|x + 1|$

g.) $f(x) = -4(x - 1)^2 + 8$

h.) $f(x) = x^2 - 6x + 8$

2.) Solve the following equations and justify your steps in words on the side

a.) $-\frac{1}{2}(x - 4) + 3x = 2x - 5 + 6x$

b.) $-7x^2 + 56 = 0$

c.) $x^2 + 5x = 0$

d.) $8x^2 - 7x - 1 = 0$

e.) $x^2 - x - 11 = 0$

f.) $3|x + 7| - 6 = 0$

3.) Sketch a graph of the exponential function below by evaluating the function for the given values and plotting the points. The give the asymptote, the domain, and the range of the function.

$$f(x) = 3(2)^x$$

$f(2) =$

$f(1) =$

$f(0) =$

$f(-1) =$

$f(-2) =$

Domain _____

Range _____

Equation of the Asymptote Line _____

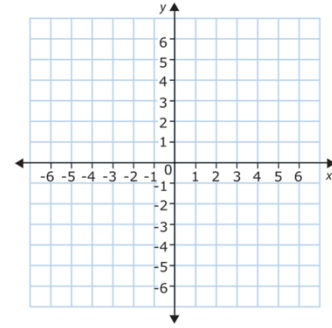
4.) Solve the system below using elimination.

$2x - 4y = 6$

$-3x + 5y = -9$

- 5.) a.) Sketch a graph of $y = 2x - 4$
 $-2x + 2y = 8$

Find the solution to the system graphically.



- b.) Solve the system below using substitution

$$y = 2x - 4$$

$$-2x + 2y = 8$$

- 6.) a.) Write the equation of the line in **point-slope form** $y - y_1 = m(x - x_1)$ that goes through the points.

$(2, -4)$ and $(4, 12)$

- b.) Write the equation of the line in **slope-intercept form** $y = mx + b$ form that goes through the points.

$(2, -4)$ and $(4, 12)$

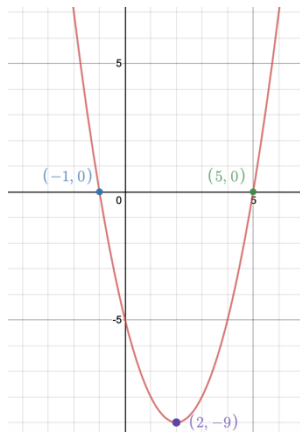
- c.) Write the equation of the line that goes through the points $(2, -4)$ and $(2, 12)$

- 7.) Write the equation of the quadratic function shown in the graph below in the following forms. For each of these $a = 1$.

a.) Vertex form $y = a(x - h)^2 + k$

b.) Factored/x-intercept form $y = a(x - p)(x - q)$

- c.) **Standard Form** $y = ax^2 + bx + c$. You will need to multiply out either vertex or factored form to find standard form.



- 8.) Factor each of the following.

a.) $49x^2 - 81$

b.) $10x^2 + 5x$

c.) $x^2 - x - 20$

d.) $4x^2 + 3x - 7$

e.) $2x^2 + 12x + 18$