

NAME: \_\_\_\_\_

Date: \_\_\_\_\_

Alg II CC

Unit #7 REVIEW

1. Given the quadratic function  $f(x) = (x-4)^2 + 2$  answer the following questions.
- a) How has the simple quadratic  $y = x^2$  been shifted to produce the graph of  $f(x)$ ?

b) Given that  $y = x^2$  has a turning point at the origin,  $(0, 0)$ , where must the turning point of  $f$  lie?

2. After a reflection in the  $y$ -axis, the quadratic function  $g(x) = 3x^2 + 7x - 2$  is defined by  $h(x)$ . State the equation of  $h(x)$ .

3. After a reflection in the  $x$ -axis, the quadratic function  $g(x) = x^2 - 5x + 3$  is defined by  $h(x)$ . State the equation of  $h(x)$ .

4. Given the following function  $f(x) = 2x^2 - 3x + 1$ :

i. State the new equations.

ii. State, in words, the transformations.

a)  $g(x) = -f(x)$

b)  $h(x) = f(-x)$

c)  $f(x) = 3f(x)$

d)  $k(x) = \frac{1}{3}f(x)$

5. If the function  $f(x)$  has a domain of  $-4 \leq x \leq 10$  and a range of  $-2 \leq y \leq 8$  and the function  $g(x)$  is defined by the formula  $g(x) = 3f(x+2)$  then what are the domain and range of  $g(x)$ ?

6. State whether the following functions are even, odd or neither. Explain how you arrived at your choice.

a)  $y = x^3 - 8x$

b)  $y = 6 - x^2$

c)  $y = |x - 6|$

d)  $y = 3^x$

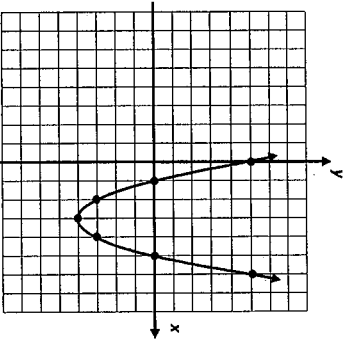
7. Given the following coordinates, state the coordinates for an even and an odd function.  
 $(2, -4), (5, -1), (6, 2)$

8. State the transformations on  $f(x)$  if  $g(x) = -\frac{1}{2}f(x+1) - 6$ .

9. Answer the following questions based on the graph of  $f(x)$ .

a) Graph  $g(x) = -f(x)$

b) Graph  $h(x) = f(-x)$



10. If  $f(7) = -3$  then what is the value of  $-2f(7) + 4f(-7)$  if:

a) It is an odd function....

b) It is an even function....

Unit #7 REVIEW

- Given the quadratic function  $f(x) = (x-4)^2 + 2$  answer the following questions.
- How has the simple quadratic  $y = x^2$  been shifted to produce the graph of  $f(x)$ ?

right 4 then up 2 units

- Given that  $y = x^2$  has a turning point at the origin,  $(0, 0)$ , where must the turning point of  $f(x)$  be?

$(4, 2)$

- After a reflection in the  $y$ -axis, the quadratic function  $g(x) = 3x^2 + 7x - 2$  is defined by  $h(x)$ . State the equation of  $h(x)$ .

$$g(-x) = 3(-x)^2 + 7(-x) - 2$$

$$h(x) = 3x^2 - 7x - 2$$

- After a reflection in the  $x$ -axis, the quadratic function  $g(x) = x^2 - 5x + 3$  is defined by  $h(x)$ . State the equation of  $h(x)$ .

$$-g(x) = -(x^2 - 5x + 3)$$

$$h(x) = -x^2 + 5x - 3$$

- Given the following function  $f(x) = 2x^2 - 3x + 1$ :

- State the new equations.

- State, in words, the transformations.

- $g(x) = -f(x)$

$$g(x) = -(2x^2 - 3x + 1)$$

$$g(x) = -2x^2 + 3x - 1$$

reflection over X axis

- $f(x) = 3f(x)$

$$j(x) = 3(2x^2 - 3x + 1)$$

$$j(x) = 6x^2 - 9x + 3$$

vertical stretch of 3

- 

$$h(x) = f(-x)$$

$$h(x) = 2(-x)^2 - 3(-x) + 1$$

$$h(x) = 2x^2 + 3x + 1$$

reflection over Y axis

- 

$$k(x) = \frac{1}{3}f(x)$$

$$h(x) = \frac{1}{3}(2x^2 - 3x + 1)$$

$$h(x) = \frac{2}{3}x^2 - x + \frac{1}{3}$$

vertical compression of  $\frac{1}{3}$

- If the function  $f(x)$  has a domain of  $-4 \leq x \leq 10$  and a range of  $-2 \leq y \leq 8$  and the function  $g(x)$  is defined by the formula  $g(x) = 3f(x+2)$  then what are the domain and range of  $g(x)$ ?

Domain

$$-4 \leq x \leq 10$$

$$-2 \leq x \leq 8$$

Range

$$-2 \leq y \leq 8$$

$$-6 \leq y \leq 24$$

- State whether the following functions are even, odd or neither. Explain how you arrived at your choice.

- $y = x^3 - 8x$

$$f(x) = x^3 - 8x$$

$$f(-x) = (-x)^3 - 8(-x)$$

$$= -x^3 + 8x$$

- $y = |x-6|$

$$f(x) = |x-6|$$

$$f(-x) = |-x-6|$$

$$= |x+6|$$

- $y = 6 - x^2$

$$f(x) = 6 - x^2$$

$$f(-x) = 6 - (-x)^2$$

$$= 6 - x^2$$

- $y = 3^x$

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

$$f(-x) = 3^{-x}$$

- Given the following coordinates, state the coordinates for an even and an odd function.

$(2, -4), (5, -1), (6, 2)$

Even:

$$(-2, -4), (-5, -1), (-6, 2)$$

change X

Odd:

$$(2, -4), (5, 1), (6, -2)$$

change X and y

- State the transformations on  $f(x)$  if  $g(x) = -\frac{1}{2}f(x+1) - 6$ .

reflection over X axis, vertical compression of  $\frac{1}{2}$  left 1, down 6

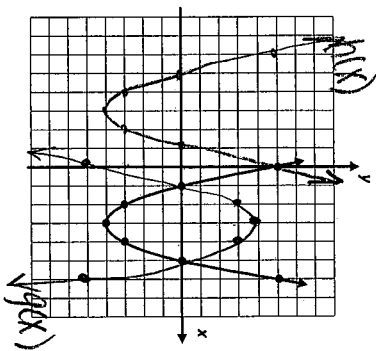
9. Answer the following questions based on the graph of  $f(x)$ .

a) Graph  $g(x) = -f(x)$

reflection over x axis

b) Graph  $h(x) = f(-x)$

reflection over y axis



10. If  $f(7) = -3$  then what is the value of  $-2f(7) + 4f(-7)$  if:

a) It is an odd function....

$$f(7) = -3$$

$$f(-7) = 3$$

$$-2(-3) + 4(3)$$

$$\boxed{18}$$

b) It is an even function....

$$f(7) = -3$$

$$f(-7) = -3$$

$$-2(-3) + 4(-3)$$

$$\boxed{-6}$$