Mid Chapter Quiz REVIEW
Pre Calc

Name: _____
Date: _____ Period: _____
Group: _____

1. Symmetry: Determine if each function is even, odd, both, or neither. **(SHOW YOUR WORK)**

$f(x) = x^4 + 7x - 30$

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Name: _____
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1. Symmetry: Determine if each function is even, odd, both, or neither. **(SHOW YOUR WORK)**

$f(x) = x^4 + 7x - 30$

$f(1) = (1)^4 + 7(1) - 30$

$= 1 + 7 - 30$

$= 8 - 30$

$= -22$

$f(-1) = (-1)^4 + 7(-1) - 30$

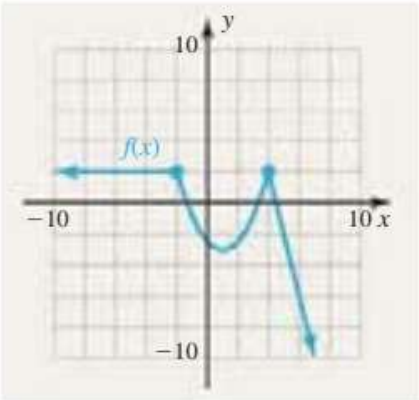
$= 1 - 7 - 30$

$= 1 - 37$

$= -36$

Since $f(1) = -22$ and $f(1) = -36$, the function is neither even or odd.

2. Determine the following characteristics, given the graph.



Evaluate $f(-2)$

Evaluate $f(0)$

Domain:

Range:

Increasing interval(s):

Decreasing interval(s):

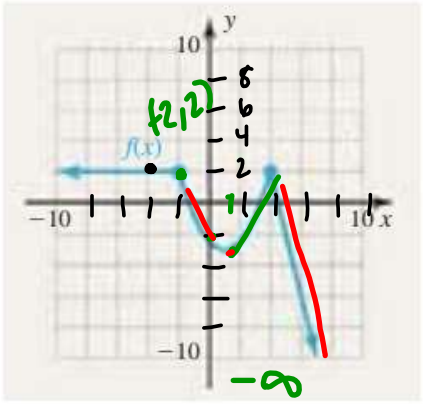
End Behavior:

$x \to -\infty, f(x) \to$

$x \to +\infty, f(x) \to$

f(x)

2. Determine the following characteristics, given the graph.



Evaluate $f(-2)$ = 2 ✓

Evaluate $f(0)$ = -2 (approx)

Domain: $\mathbb{R}$ $(-\infty, \infty)$ ✓

Range: $(-\infty, 2]$ ✓

Increasing interval(s): $(1, 4)$

Decreasing interval(s): $(-2, 1)$ & $(4, \infty)$

End Behavior:

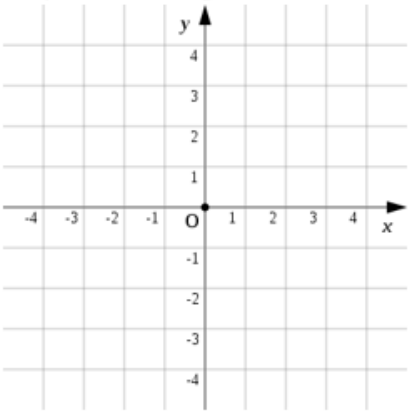
$x \to -\infty, f(x) \to$ 2

$x \to +\infty, f(x) \to$ $-\infty$

$(-\infty, -2), (-2, 1), (1, 4), (4, \infty)$

constant DEC INC DEC.

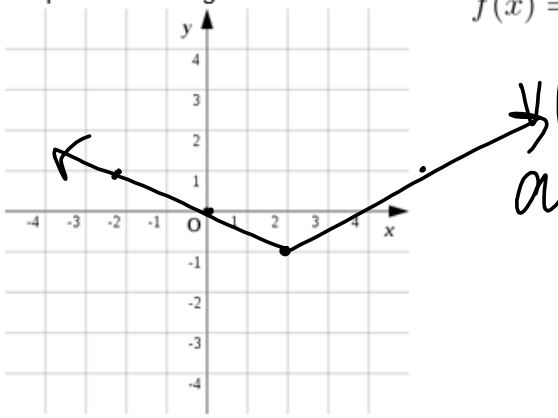
3. Graph the following transformation.



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

3. Graph the following transformation.

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

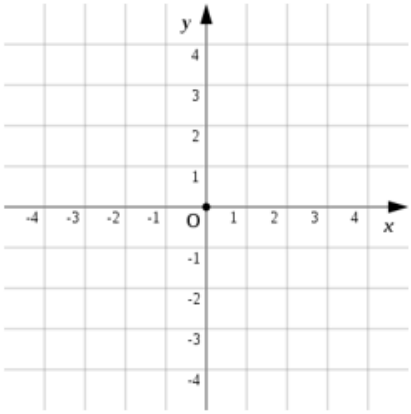


(2, -1)

$a = \frac{1}{2}$

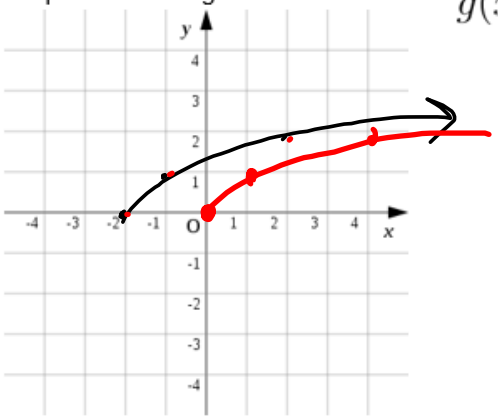
Right 2
down 1

4. Graph the following transformation. $g(x) = \sqrt{x+2}$



4. Graph the following transformation.

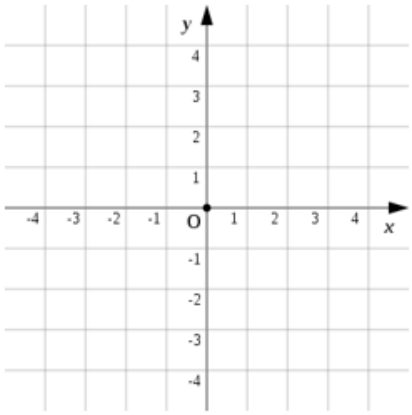
$g(x) = \sqrt{x+2}$



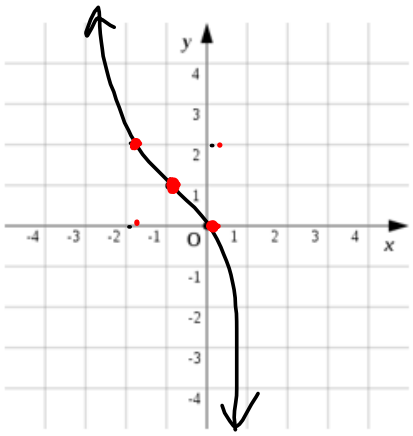
shift left 2

$\sqrt{x}$

5. Graph the following transformation. $j(x) = -(x+1)^3 + 1$



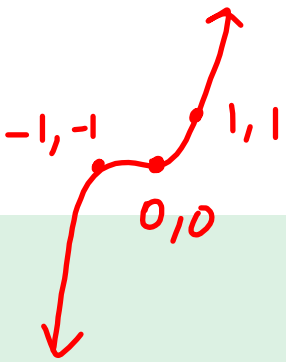
5. Graph the following transformation.



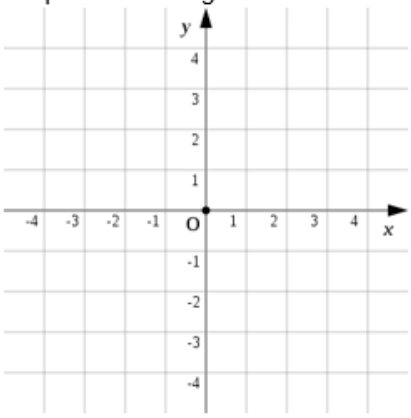
$$j(x) = -(x+1)^3 + 1$$

IP $(-1,1)$ Left 1, up 1

Reflection

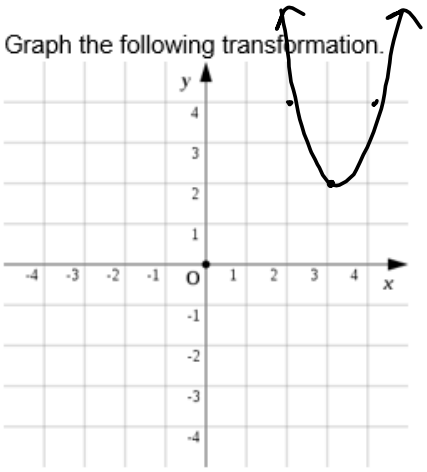


6. Graph the following transformation.



$$k(x) = 2(x-3)^2 - 2$$

6. Graph the following transformation.

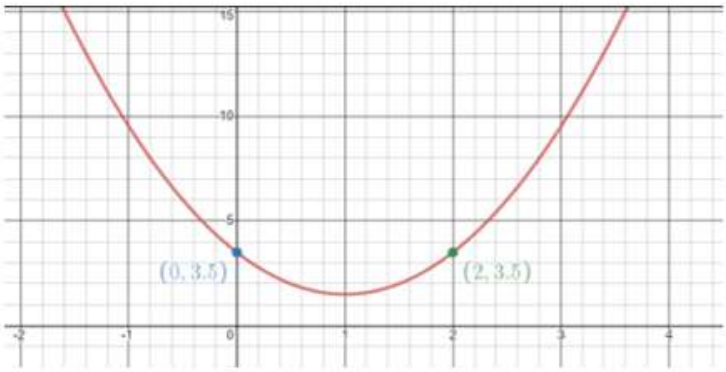


$k(x) = 2(x-3)^2 - 2$

V(3, -2)

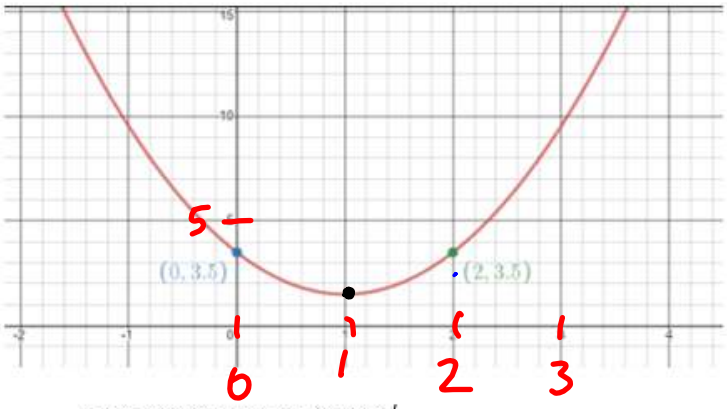
stretch by 2

7. Given the following graph, determine the equation.



Hint: Identify the vertex first.
Then, determine the a value. (Stretch/Compression)

7. Given the following graph, determine the equation.



Hint: Identify the vertex first.
Then, determine the a value. (Stretch/Compression)

$y = 2(x-1)^2 + 1.5$

Stretch: normally over 1 up 1
over 2 up 4

It's Actually over 1 up 2 ⇒ stretch 2

8. Solve the following:
$3|4x - 1| - 2 = 4$

8. Solve the following:

$3|4x-1|-2=4$

$+2 \quad +2$

$\frac{3|4x-1|}{3} = \frac{6}{3}$

$|4x-1| = 2$

(+) $4x-1=2$

$+1 \quad +1$

$4x=3$

$x=\frac{3}{4}$

(−) $4x-1=-2$

$+1 \quad +1$

$4x=-1$

$x=-\frac{1}{4}$

9. Solve the following:

$$\left|\frac{2x}{3} - 1\right| + 2 < 5$$

9. Solve the following:

$$\left|\frac{2x}{3} - 1\right| + 2 < 5$$

$-2 \quad -2$

$$\left|\frac{2x}{3} - 1\right| < 3$$

(+) (−)

$$\frac{2x}{3} - 1 < 3 \qquad \frac{2x}{3} - 1 > -3$$

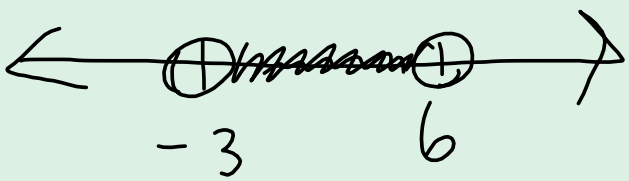
$+1 \quad +1 \qquad +1 \quad +1$

$$\frac{2x}{3} < 4 \qquad \frac{2x}{3} > -2$$

$$3\left(\frac{2x}{3} < 4\right) \qquad 3\left(\frac{2x}{3} > -2\right)$$

$$2x < 12 \qquad 2x > -6$$

$$\boxed{x < 6} \qquad \boxed{x > -3}$$



10. Solve the following:

$$\left|\frac{x+3}{5}\right| > 4$$

10. Solve the following:

$$\left|\frac{x+3}{5}\right| > 4$$

(+) $\frac{x+3}{5} > 4$

$5\left(\frac{x+3}{5} > 4\right)$

$x+3 > 20$

$-3 \quad -3$

$x > 17$

(−) $\frac{x+3}{5} < -4$

$5\left(\frac{x+3}{5} < -4\right)$

$x+3 < -20$

$-3 \quad -3$

$x < -23$

11. Solve the following:

$$4 < 6 - 2x \leq 8$$

11. Solve the following:

$$4 < 6 - 2x \leq 8$$

$-6 \quad -6 \quad -6$

$-2 < -2x \leq 2$

$\frac{}{-2} \quad \frac{}{-2} \quad \frac{}{-2}$

$1 > x \geq -1$

$x \geq -1$ ✓

$1 > x$ is the same as $x < 1$ ✓