

NAME

Key

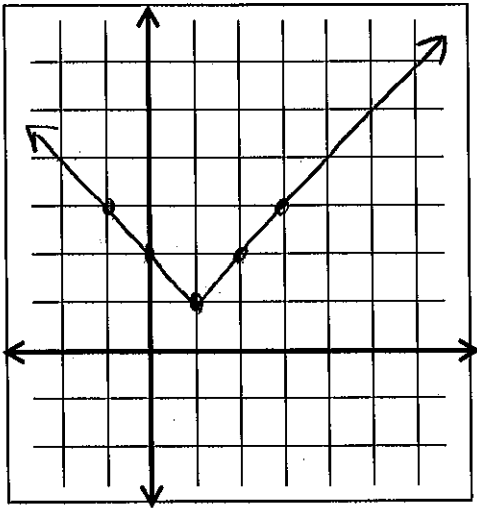
DATE

PERIOD

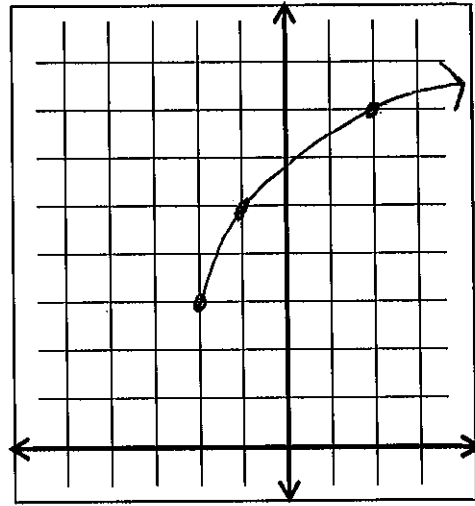
## AFM -- Unit 1 GRAPHING -- TEST REVIEW SHEET #1

## I. Graph

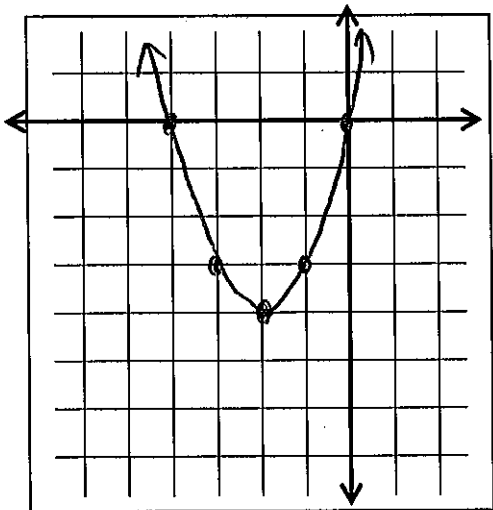
1.  $y = |x-1| + 1$



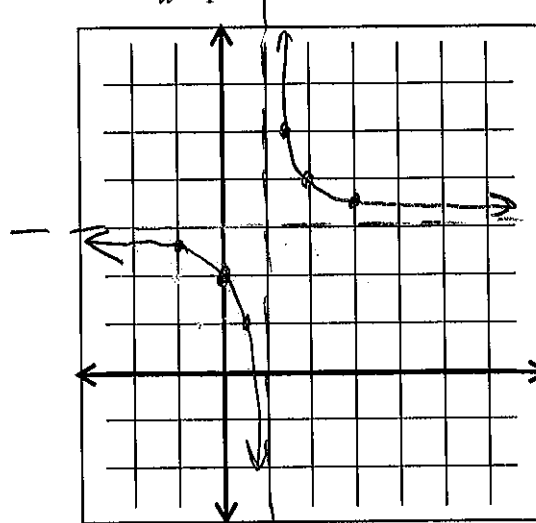
2.  $y = 2\sqrt{x+2} + 3$



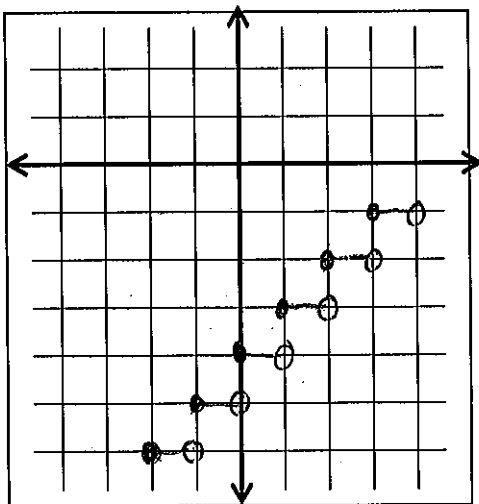
3.  $y = (x+2)^2 - 4$



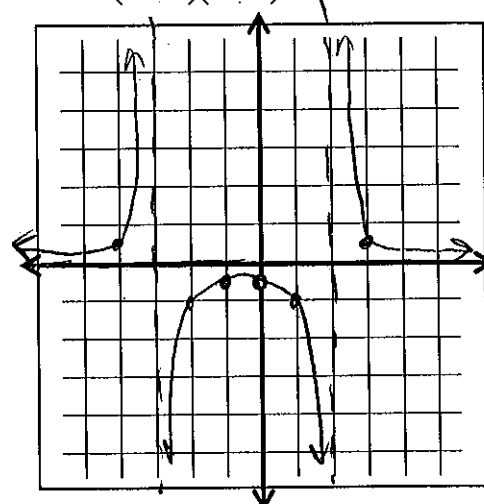
4.  $y = \frac{1}{x-1} + 3$



5.  $y = [x] - 4$



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

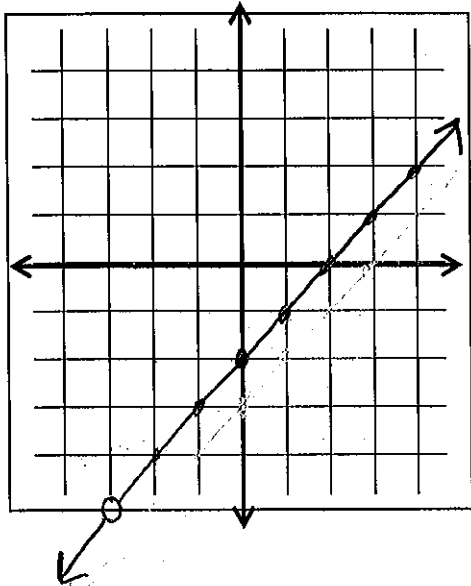


VA:  $x=2, x=-3$   
 HA:  $y=0$   
 x-int: none  
 y-int:  $(0, -\frac{2}{3})$

7.  $y = \frac{x^2 + x - 6}{x + 3} = \frac{(x+3)(x-2)}{x+3} = x-2$

II. Short Answer

8. Determine all of the asymptotes of  $f(x) = \frac{-4}{x^2 + 4x + 3}$ .



VA: none  
HA: None  
Hole: (-3, -5)

HA:  $y=0$   
VA:  $x=-3, x=-1$

9. Given  $f(x) = \frac{1}{4}\sqrt{25-4x^2}$ , find  $f^{-1}(x)$ .

$f^{-1}(x) = \sqrt{\frac{25}{4} - 4x^2}, x \geq 0$

10. Given the following, describe the transformations to their parent graph.

a.  $y = [2x]$

Shrink horizontally by  $1/2$

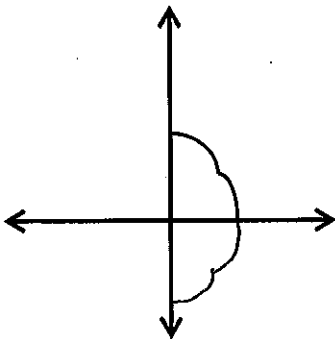
b.  $y = x^2 + 1$

Up 1

c.  $y = -3(x-1)^3 - 4$

Right 1  
Stretch vertically by 3  
Flip over x-axis  
Down 4

11. Complete the graph so that it's symmetric wrt the x-axis.



12. Classify each function as even, odd, or neither.

a.  $y = x^4 + 2x - 1$

Neither

b.  $y = |x-1| + x^3$

neither

c.  $y = |x^2| + 2$

Even

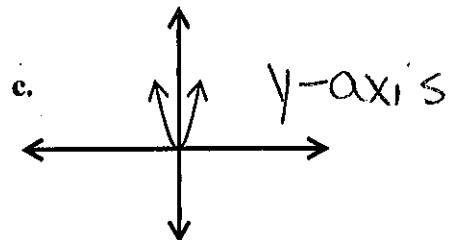
13. State the symmetry of each relation.

a.  $x = 9y^2 - 25$

X-axis

b.  $\{(4,7), (-7,-4)\}$

$y = -x$



## AFM -- Unit 1 GRAPHING -- TEST REVIEW SHEET #2

## I. Identify the parent graph and describe the transformation.

1.  $f(x) = \sqrt{x+4}$   
 $y = \sqrt{x}$   
 Left 4

2.  $y = \frac{1}{x-1}$   
 $y = \frac{1}{x}$   
 Right 1

3.  $y = x^2 + 2$   
 $y = x^2$   
 Up 2

4.  $y = \frac{1}{x+2}$   
 $y = \frac{1}{x}$   
 Left 2

5.  $y = -2\sqrt{x}$   
 $y = \sqrt{x}$   
 Stretch vert. by 2  
 Flip over x-axis

6.  $y = 3(x+1)^2 - 2$   
 $y = x^2$   
 Left 1  
 Stretch vert by 3  
 Down 2

7.  $y = -2|x-1| + 3$   
 $y = |x|$   
 Right 1  
 Stretch vert by 2  
 Flip over x-axis  
 Up 3

8.  $y = 3(x-2)^3 - 1$   
 $y = x^3$   
 Right 2  
 Stretch vert. by 3  
 Down 1

## II. What restrictions, if any, must be placed on the domain of each function?

1.  $f(x) = \frac{5}{x+4}$   
 $x \neq -4$   
 $D: (-\infty, -4) \cup (-4, \infty)$

2.  $f(x) = \frac{3}{x-2}$   
 $x \neq 2$   
 $D: (-\infty, 2) \cup (2, \infty)$

3.  $f(x) = 1 + \frac{1}{x-2}$   
 $x \neq 0$   
 $D: (-\infty, 0) \cup (0, \infty)$

4.  $f(x) = -5$   
 none  
 $D: (-\infty, \infty)$

5.  $f(x) = 2x + 1$   
 none  
 $D: (-\infty, \infty)$

6.  $f(x) = x + \frac{1}{x}$   
 $x \neq 0$   
 $D: (-\infty, 0) \cup (0, \infty)$

7.  $f(x) = \sqrt{x^2 - 1}$   
 Not:  $(-1, 1)$  or  $-1 < x < 1$   
 $D: (-\infty, -1] \cup [1, \infty)$

8.  $f(x) = \sqrt{16 - x}$   
 Not:  $x > 16$  or  $(16, \infty)$   
 $D: (-\infty, 16]$

## III. Write the equation for the graphs of the following functions.

1.  $y = x^2$ ; shift the graph up 5 units

$$y = x^2 + 5$$

2.  $y = \sqrt{x}$ ; shift the graph to the left 3 units

$$y = \sqrt{x+3}$$

3.  $y = |x|$ ; shrink vertically by 1/5

$$y = \frac{1}{5}|x|$$

4.  $y = \frac{1}{x}$ ; shift the graph down 3 units

$$y = \frac{1}{x} - 3$$

5.  $y = \sqrt{x}$ ; flip over the x-axis

$$y = -\sqrt{x}$$

6.  $y = x$ ; stretch vertically by 3

$$y = 3x$$

7.  $y = x^3$ ; stretch horizontally by  $\frac{1}{2}$

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

8.  $y = |x|$ ; shift the graph up 4 units and left 5 units

$$y = |x+5| + 4$$

NAME \_\_\_\_\_

DATE \_\_\_\_\_

PERIOD \_\_\_\_\_

9.  $y = x^2$ ; shift the graph to the left 5 units and flip over the x-axis

$$y = -(x+5)^2$$

10.  $y = x^2$ ; shift the graph to the left 3 units and down 1 unit

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

11.  $y = x$ ; stretch vertically by 2 and flip over the x-axis

$$y = -2x$$

12.  $y = |x|$ ; shift the graph to the right 4 units and up 2 units

$$y = |x-4| + 2$$

13.  $y = \sqrt{x}$ ; shift the graph to the left 2 units, down 4 units, and flip over the x-axis

$$y = -\sqrt{x+2} - 4$$

14.  $y = \frac{1}{x}$ ; shift the graph to the left 3 units and up 1 unit

$$y = \frac{1}{x+3} + 1$$

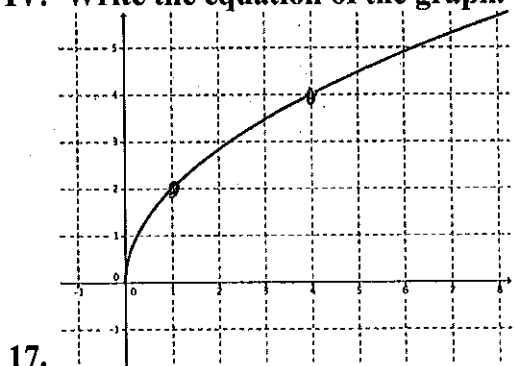
15.  $y = x^3$ ; shrink vertically by 1/4 and shift to the right 3 units

$$y = \frac{1}{4}(x-3)^3$$

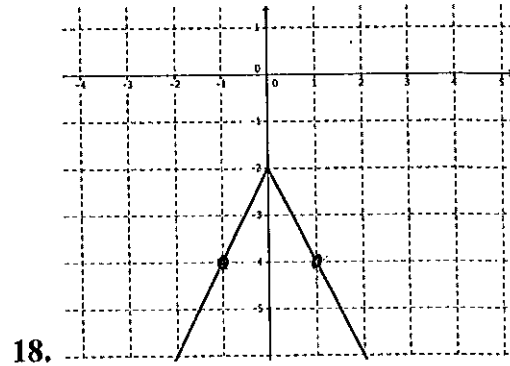
16.  $y = [x]$ ; shift the graph to the right 6 units and up 2 units

$$y = [x-6] + 2$$

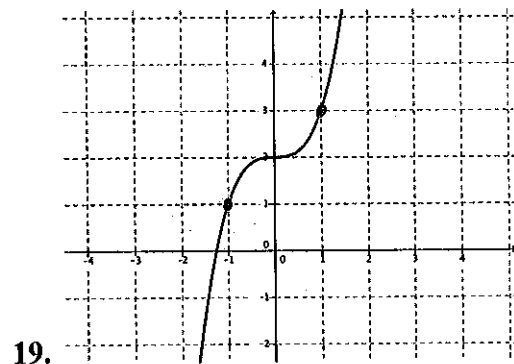
IV. Write the equation of the graph.



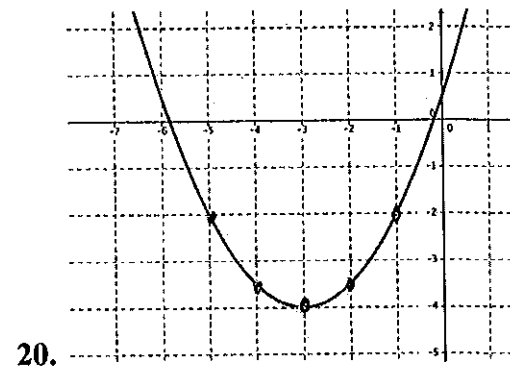
$$y = 2\sqrt{x}$$



$$y = -2|x| - 2$$



$$y = x^3 + 1$$



$$y = \frac{1}{2}(x+3)^2 - 4$$