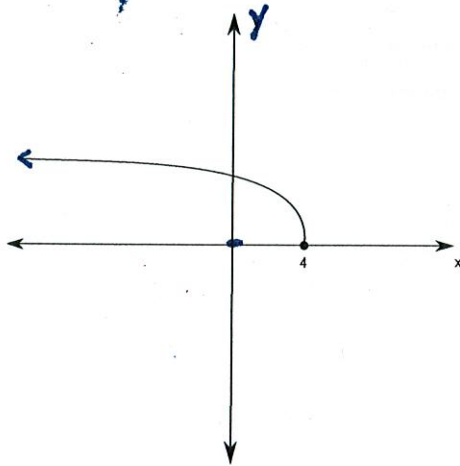


**PreCalculus**  
 Practice Problems  
 Domain/Range  
 Transformations

Name \_\_\_\_\_  
 Date \_\_\_\_\_ Period \_\_\_\_\_

**Evaluate each of the following.**

1)

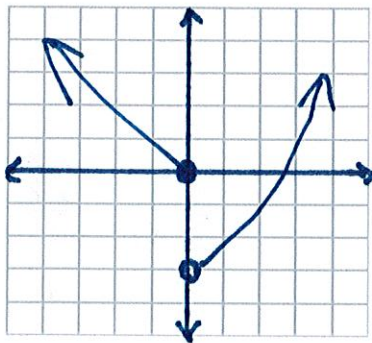


- a). Is this graph a function? *yes*
- b). What is its domain?  $\{x \mid x \leq 4\}$   $(-\infty, 4]$
- c). What is its range?  $\{y \mid y \geq 0\}$   $[0, \infty)$

**For each of the following draw a function that has the indicated domain and range.**

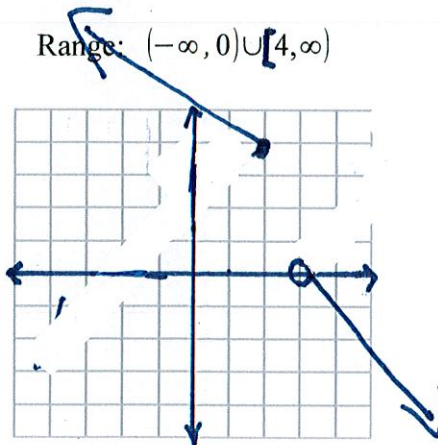
2) Domain:  $\{x \mid x \in \mathbb{R}\}$

Range:  $\{y \mid y > -3\}$



3) Domain:  $(-\infty, 2] \cup (3, \infty)$

Range:  $(-\infty, 0) \cup [4, \infty)$



Identify the domain of each function algebraically.

$\sqrt{16-x^2}$   
 $\sqrt{x^2-x-6}$  Check quadratic under square root

4)  $f(x) = -4x^3 - 6$

$\{x | x \in \mathbb{R}\}$

5)  $y = \frac{2x+3}{x-7}$

$\{x | x \neq 7\}$

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

$x+3 \geq 0$   
 $\{x | x \geq -3\}$

7)  $y = \frac{\sqrt{x-1}}{x+3}$   $x \geq 1$   
 $x \neq -3$

$\{x | x \geq 1\}$

8)  $f(x) = \frac{3x^2+2x}{7}$

$\{x | x \in \mathbb{R}\}$

9)  $y = \frac{3x}{x^2-9}$

$\{x | x \neq \pm 3\}$

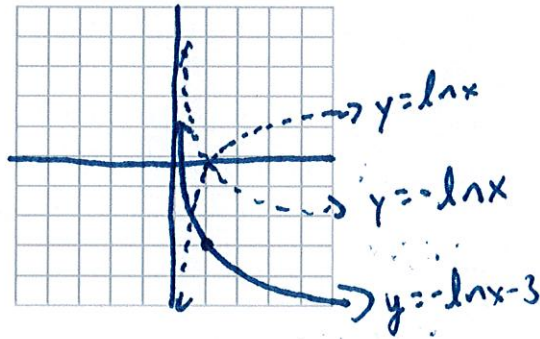
$x^2-9=0$   
 $\sqrt{x^2} = \sqrt{9}$   
 $x = \pm 3$

$\frac{\sqrt{x-1}}{x-3}$   $x \geq 1$   
 $x \neq 3$

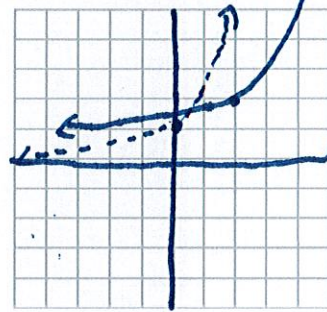
Graph each of the following functions

$y = -\ln x - 3$

10)  ~~$y = \log x - 3$~~

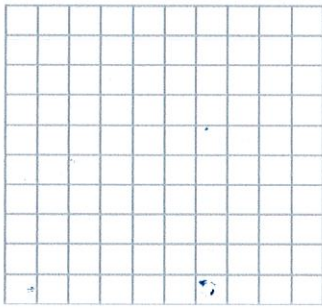


11)  $f(x) = e^{x-2} + 1$

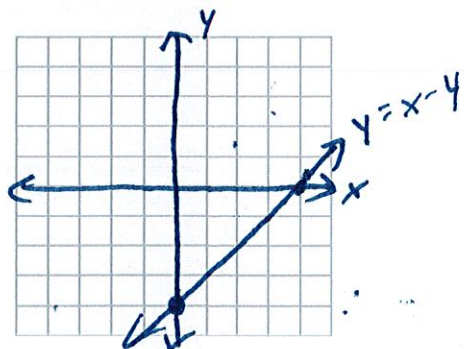


$\{x | x \geq 1, x \neq 3\}$   
 $[1, 3) \cup (3, \infty)$

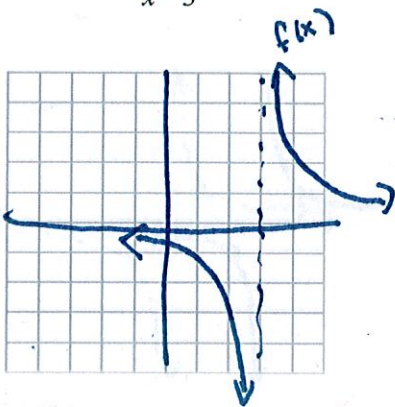
12)  ~~$f(x) = -||x+2||$~~



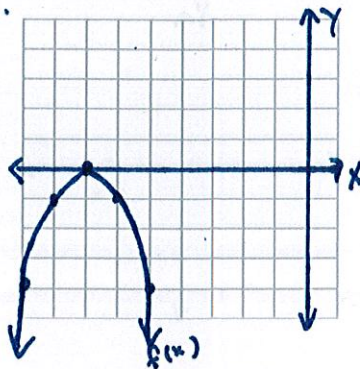
13)  $y = x - 4$



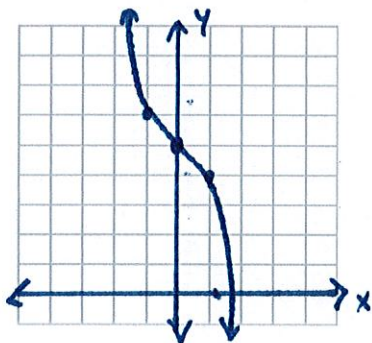
14)  $f(x) = \frac{1}{x-3}$



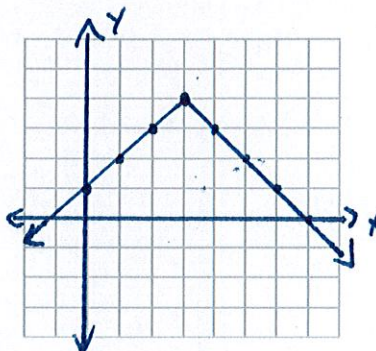
15)  $y = -(x+7)^2$



16)  $y = -x^3 + 5$

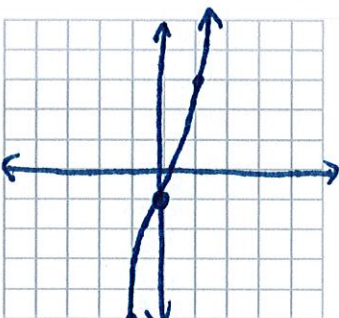


17)  $f(x) = -|x-3| + 4$



Identify if each is affected by a horizontal or vertical stretch or compression. Graph

18)  $y = 4x^3 - 1$  V.S

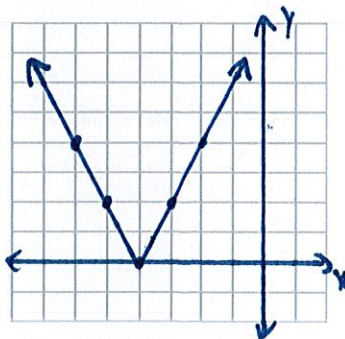


$y = x^3$

x	y
0	0
-1	-1
1	1
<del>2</del>	<del>8</del>
<del>-2</del>	<del>-8</del>

x	4y-1
0	-1
-1	-5
1	3
2	
-2	

19)  $y = 2|x+4|$  V.S.



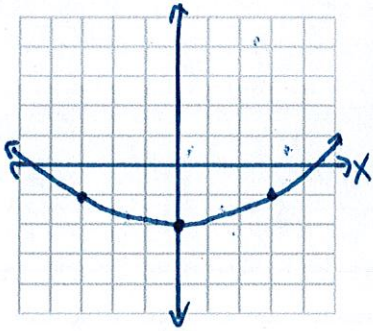
|x|

x	y
-2	2
-1	1
0	0
1	1
2	2

2|x+4|

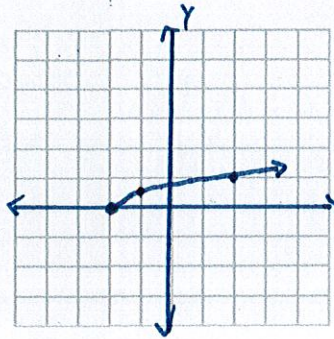
x-4	3y
-6	4
-5	2
-4	0
-3	2
-2	4

20).  $y = \left(\frac{1}{3}x\right)^2 - 2$  H.S.

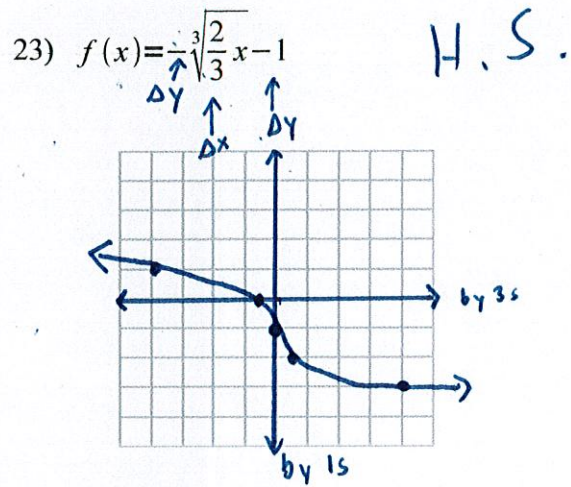
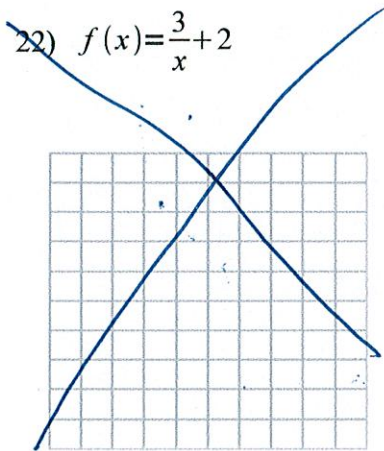


$x^2$	$\left(\frac{1}{3}x\right)^2 - 2$
0	-2
1	-1
4	0
9	1
16	2

21).  $y = \frac{1}{2}\sqrt{x+2}$  V.C.



$\sqrt{x}$	$\frac{1}{2}\sqrt{x+2}$
0	0
1	1/2
2	1
3	3/2



$y = \sqrt[3]{x}$

$x$	$y$
0	0
1	1
-1	-1
8	2
-8	-2

$\frac{3}{2}x$	$-y-1$
0	-1
3/2	-2
-3/2	0
12	-3
-12	1

$\frac{3}{2}(-1) =$

$\frac{3}{2}(-8) = -\frac{24}{2} = -12$