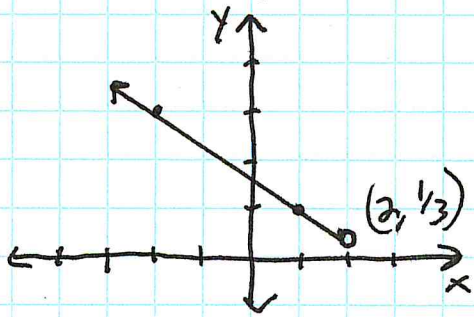


FUNCTIONS, DOMAIN, RANGE STUDY GUIDE

(1)

1. $2x + 3y = 5 \quad \{x | x < 2\}$

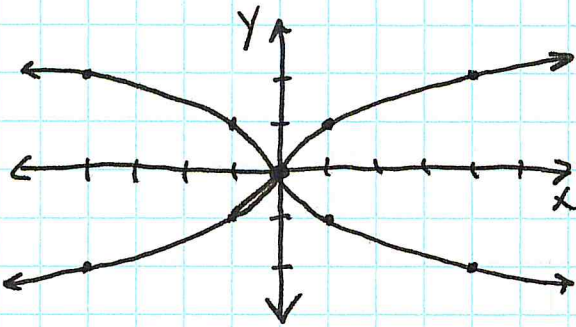


x	y
2	1/3
1	1
0	5/3
-1	7/3
-2	3

* $R: \{y | y > 1/3\}$

* IT IS A FUNCTION

2. $y^2 = |x| \quad D: \{x | x \in \mathbb{R}\}$

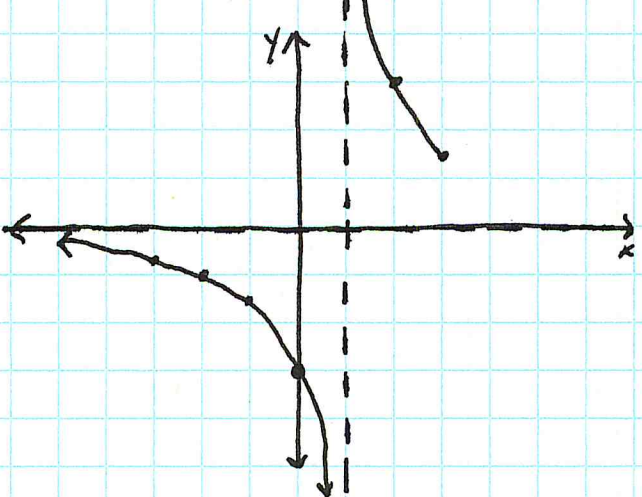


x	y
0	0
1	-1
1	1
-1	-1
-1	1
4	-2
4	2
-4	-2
-4	2

* $R: \{y | y \in \mathbb{R}\}$

* NOT A FUNCTION

3. $f(x) = \frac{3}{x-1} \quad \{x | x \leq 3\}$



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

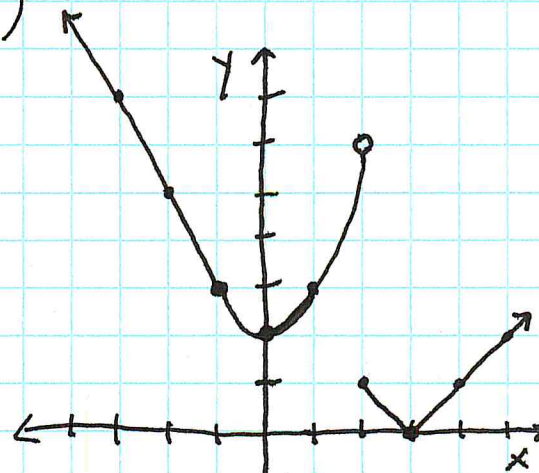
* $R: \{y | y < 0 \vee y \geq 3/2\}$

4. GRAPH THE FOLLOWING AND STATE RANGE: (I KNOW I DIDN'T ASK FOR IT)

$$f(x) = \begin{cases} 1-2x, & x < -1 \\ x^2+2, & -1 \leq x < 2 \\ |x-3|, & x \geq 2 \end{cases}$$

* $R: \{y | y \geq 0\}$

x	y
-2	5
-1	3
-1	3
0	2
1	3
2	6
2	1
3	0
4	1



GIVEN $f(x) = 2x + 3$ AND $g(x) = 2x - x^2$...

(2)

5. FIND $f(g(-1)) + 4g(f(2)) \Rightarrow$

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

$$f(2) = 2(2) + 3 = 7$$

$$f(-3) + 4g(7) \Rightarrow$$

$$f(-3) = 2(-3) + 3 = -3$$

$$g(7) = 2(7) - (7)^2 = -35$$

$$-3 + 4(-35) = \boxed{-143}$$

6. IF $3f(2k) = 15$, FIND $g(4k)$

$$\frac{3f(2k) = 15}{3} \Rightarrow f(2k) = 5$$

$$f(2k) = 2(2k) + 3 = 4k + 3 \text{ AND } f(2k) = 5$$

$$\text{IMPLIES } 4k + 3 = 5$$

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

$$g(4k) \text{ IS } g(2) \text{ AND } g(2) = 2(2) - (2)^2 = \boxed{0}$$

7. IF $h(x) = g(x^2 + f(x-1))$, FIND $h(f(-1))$

$$h(1) = g(1^2 + f(0))$$

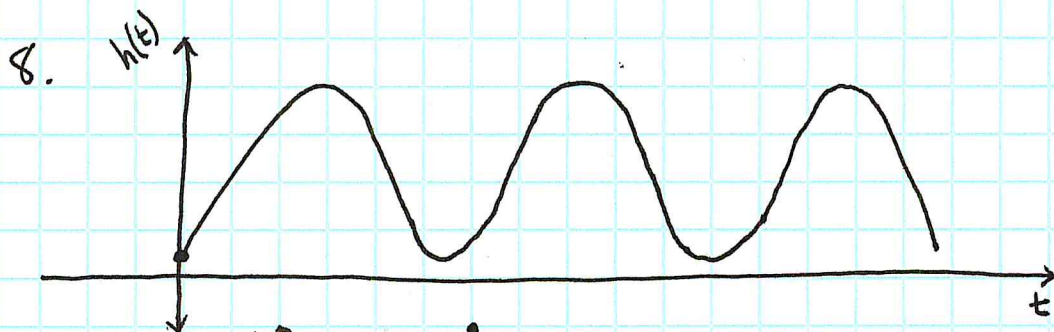
$$f(-1) = 2(-1) + 3 = -2 + 3 = 1$$

$$h(1) = g(1 + f(0))$$

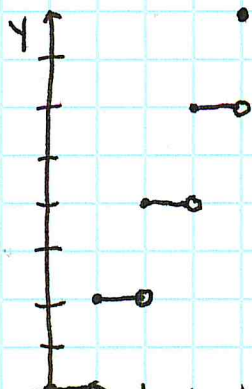
$$f(0) = 2(0) + 3 = 3$$

$$h(1) = g(4)$$

$$g(4) = 2(4) - (4)^2 = 8 - 16 = -8 \text{ . SO } \boxed{h(1) = -8}$$



9.



10... ALSO TRY
GRAPHING SOLUTION TO
 $|2x - 5| < 8$