

Alg2 Honors 2-2,2-4 Graphs of Functions and Relations Worksheet #2b Date Key

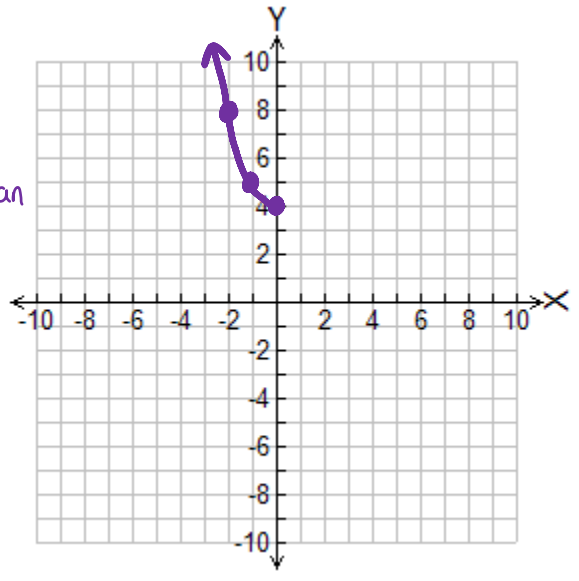
Plot the graph and tell whether or not the relation is a function. Assume the domain is the set of all values of x for which there are real-number values of y unless otherwise stated. If the graph is a function, state the domain and range in a) words b) inequality notation c) interval notation.

1. $y = x^2 + 4$ D: {non-positive reals}

x	y
0	4
-1	5
-2	8

D: $\{x \mid x \leq 0\}$
 D: $(-\infty, 0]$
 R: {all real #s greater than 4, including 4}
 R: $\{y \mid y \geq 4\}$
 R: $[4, +\infty)$

Yes, a function



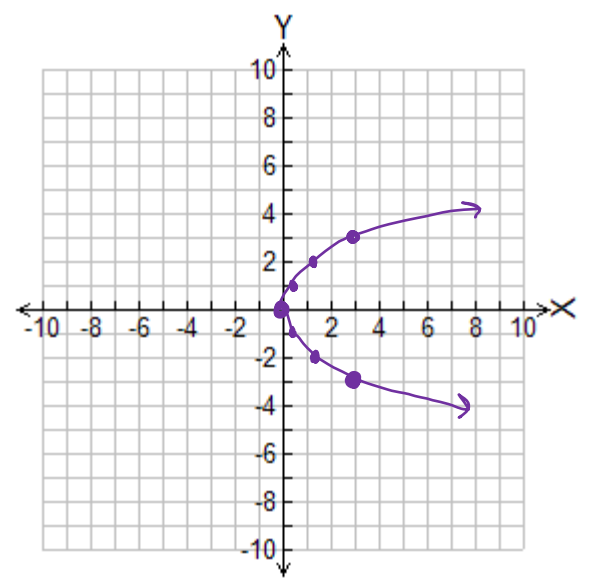
2. $y^2 = 3x$

$y = \pm\sqrt{3x}$ OR

$x = \frac{y^2}{3}$

x	y
0	0
$\frac{1}{3}$	± 1
$\frac{4}{3}$	± 2
3	± 3

x	y
$\frac{4}{3}$	± 2
$\frac{1}{3}$	± 1
0	0
3	± 3



Not a function, fails the Vertical Line Test

3. $y = -\frac{3}{x}$ Yes, a function!

x	y
-3	1
-1	3
0	/
1	-3
3	-1
-1/2	6
1/2	-6
-6	1/2
6	1/2

$D: \{ \text{all real \#s except } 0 \}$

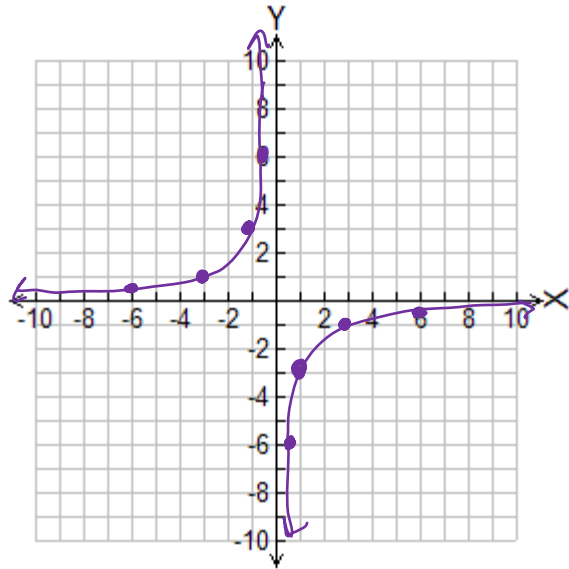
$D: \{x \mid x \neq 0\}$

$D: (-\infty, 0) \cup (0, +\infty)$

$R: \{ \text{all real \#s except } 0 \}$

$R: \{y \mid y \neq 0\}$

$R: (-\infty, 0) \cup (0, +\infty)$



4. $y = |x + 5|$ $D: \{x: -7 \leq x \leq 5\}$

Function!

x	y
-2	3
-1	4
0	5
1	6
2	7
-5	0
-6	1
-7	2
5	10

$D: \{ \text{all reals b/w } -7 \text{ and } 5, \text{ including } -7 \text{ and } 5 \}$

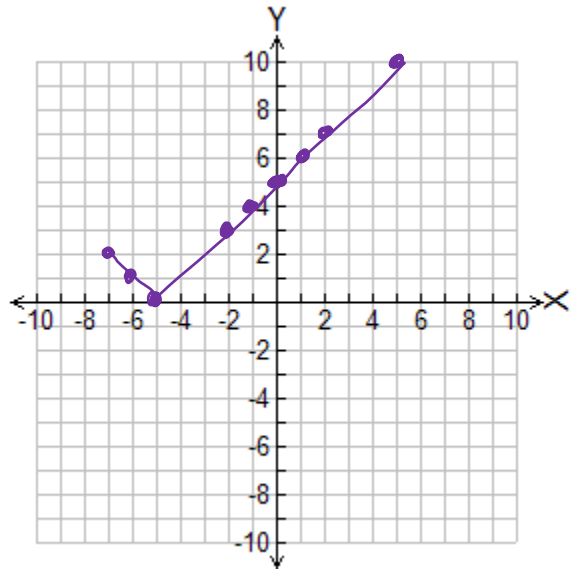
$D: \{x \mid -7 \leq x \leq 5\}$

$D: [-7, 5]$

$R: \{ \text{all real \#s b/w } 0 \text{ and } 10, \text{ including } 0 \text{ and } 10 \}$

$R: \{y \mid 0 \leq y \leq 10\}$

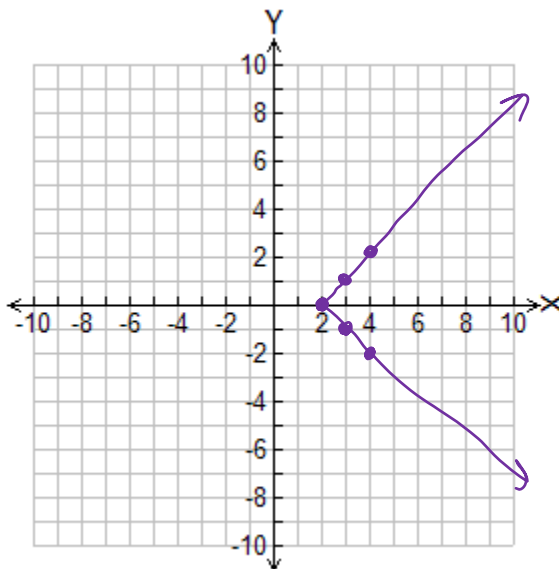
$R: [0, 10]$



5. $|y| = x - 2$ or $y = x - 2$
 $x = |y| + 2$ $y = 2 - x$

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

Not a function,
fails VLT



6. $y = \frac{2}{x}$

D: {negative reals}

x	y
-2	-1
-1	-2
-1/2	-4
-1/4	-8

Yes, a function!

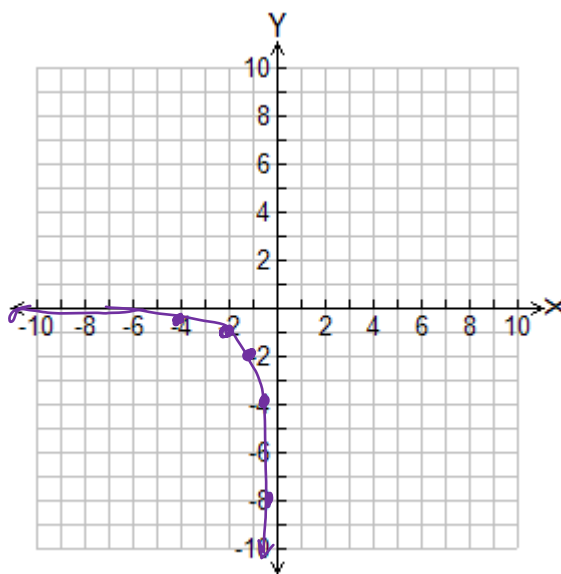
D: $\{x \mid x < 0\}$

D: $(-\infty, 0)$

R: {negative reals}

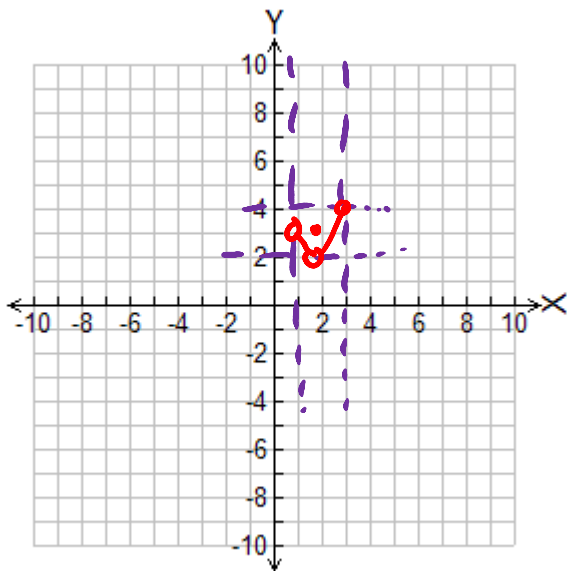
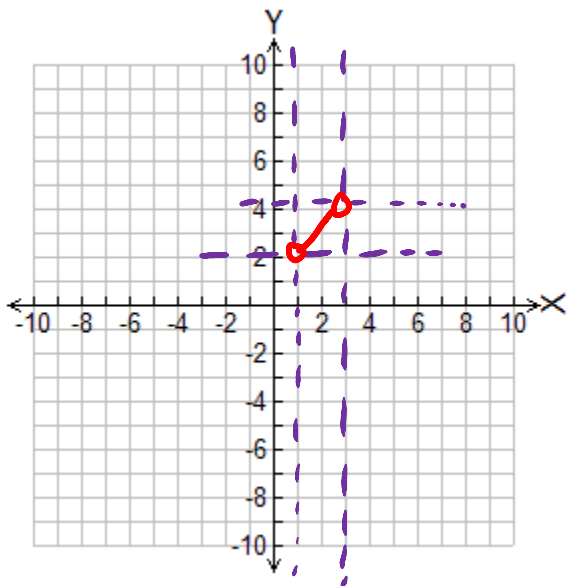
R: $\{y \mid y < 0\}$

R: $(-\infty, 0)$

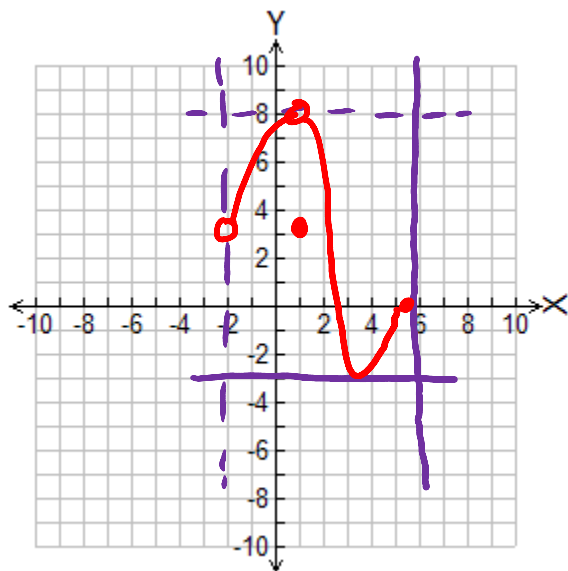
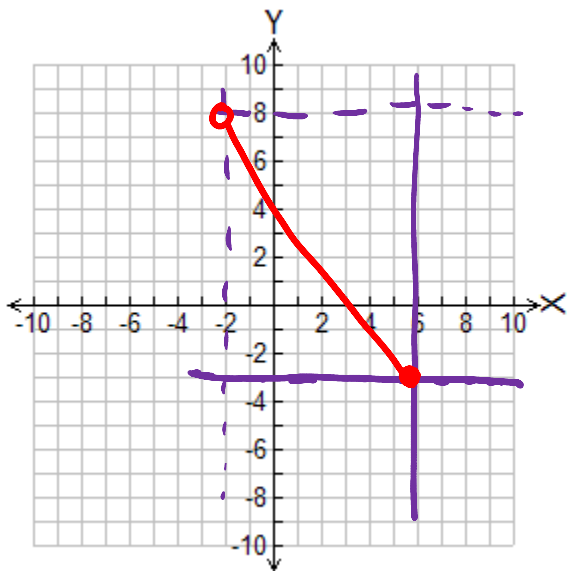


Using the domain and range given, sketch 2 different graphs that supports the data.

7. $D: \{x: 1 < x < 3\}$; $R: \{y: 2 < y < 4\}$

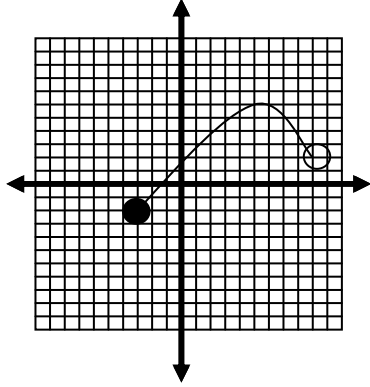


8. $D: \{x: -2 < x \leq 6\}$; $R: \{y: -3 \leq y < 8\}$



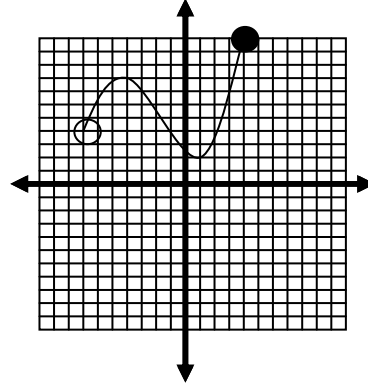
Analyze the graph to identify the domain and range in interval notation.

9.



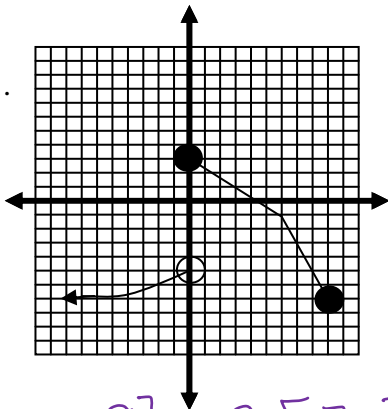
$$D: [-3, 9) \quad R: [-2, 6]$$

10.



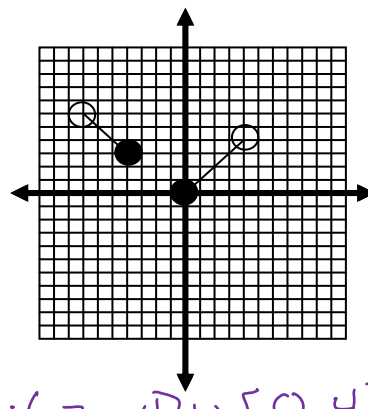
$$D: (-7, 4] \quad R: [2, 11]$$

11.



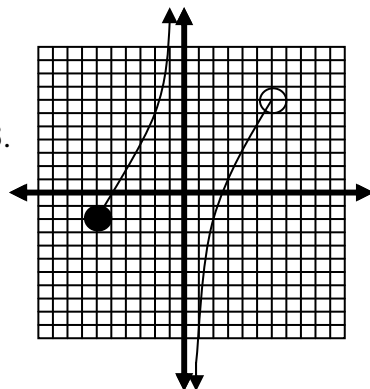
$$D: (-\infty, 9] \quad R: [-7, 3]$$

12.



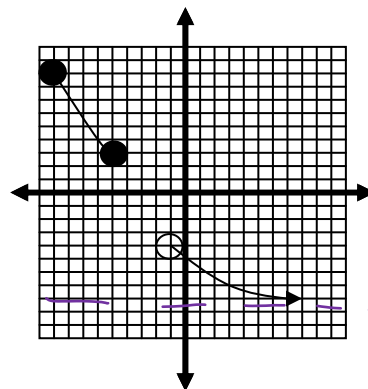
$$D: (-7, -4] \cup [0, 4) \\ R: [0, 6)$$

13.



$$D: [-6, 0) \cup (0, 6) \\ R: (-\infty, +\infty)$$

14.



$$D: [-9, -5] \cup (-1, +\infty) \\ R: (-8, -4) \cup [3, 9]$$

Tell whether or not the relation graphed is a function.

