

Directions: Play in Pairs. Players choose what problem to do, first person to get it correct wins the square!

# Tic-Tac-Toe

5	-11	$\frac{25}{4}$
$-x^2 - 9x - 14$	-35	$2x^2 + 3x + 1$
8	$4x^2 - 18x + 20$	$\frac{29}{16}$

**Directions:** Simplify and justify each step. Compare and contrast your steps and justification with your partner. Then find the answer above.

1)  $g(x) = -6|x| + x$  find  $g(-5)$

6)  $f(x) = 4x^2 + 6x + 2$  find  $f(x - 3)$

2)  $h(x) = (x + 3)^2$  find  $h\left(-\frac{1}{2}\right)$

7)  $h(x) = -x^2 - 5x$  find  $h(x + 2)$

3)  $f(x) = \frac{3}{4}x - 1$  find  $f(8)$

8)  $g(x) = 2x^2 - 2x + x$  find  $g(x + 1)$

4)  $\beta(\alpha) = \alpha^3 - \alpha + 2$  find  $\beta(2)$

9)  $g(x) = |3x + 1| + 4x$  find  $g(-10)$

5)  $g(x) = x^2 + 3x - 1$  find  $g\left(\frac{3}{4}\right)$

$$\begin{aligned} \textcircled{1} \quad g(x) &= -6|x| + x \\ g(-5) &= -6|-5| + -5 \\ &= -30 + -5 \\ &= -35 \end{aligned}$$

$$\begin{aligned} \textcircled{2} \quad h(x) &= (x+3)^2 \quad h\left(-\frac{1}{2}\right) \\ h\left(-\frac{1}{2}\right) &= \left(-\frac{1}{2}+3\right)^2 \\ h\left(-\frac{1}{2}\right) &= \left(\frac{5}{2}\right)^2 \\ &= \frac{25}{4} \end{aligned}$$

$$\begin{aligned} \textcircled{3} \quad f(x) &= \frac{3}{4}x - 1 \\ f(8) &= \frac{3}{4}(8) - 1 \\ &= 6 - 1 \\ &= 5 \end{aligned}$$

$$\begin{aligned} \textcircled{4} \quad B(x) &= x^3 - x + 2 \\ B(2) &= (2)^3 - (2) + 2 \\ &= 8 \end{aligned}$$

$$\begin{aligned} \textcircled{5} \quad g(x) &= x^2 + 3x - 1 \\ g\left(\frac{3}{4}\right) &= \left(\frac{3}{4}\right)^2 + 3\left(\frac{3}{4}\right) - 1 \\ &= \frac{9}{16} + \frac{9}{4} - 1 \\ &= \frac{9}{16} + \frac{36}{16} - \frac{16}{16} \\ &= \frac{29}{16} \end{aligned}$$

$$\begin{aligned} \textcircled{6} \quad f(x) &= 4x^2 + 6x + 2 \\ f(x-3) &= 4(x-3)^2 + 6(x-3) + 2 \\ &= 4(x^2 - 6x + 9) + 6x - 18 + 2 \\ &= 4x^2 - 24x + 36 + 6x - 18 + 2 \\ &= 4x^2 - 18x + 20 \end{aligned}$$

$$\begin{aligned} \textcircled{7} \quad h(x) &= -x^2 - 5x \quad \text{find } h(x+2) \\ &= -(x+2)^2 - 5(x+2) \\ &= -(x^2 + 4x + 4) - 5x - 10 \\ &= -x^2 - 4x - 4 - 5x - 10 \\ &= -x^2 - 9x - 14 \end{aligned}$$

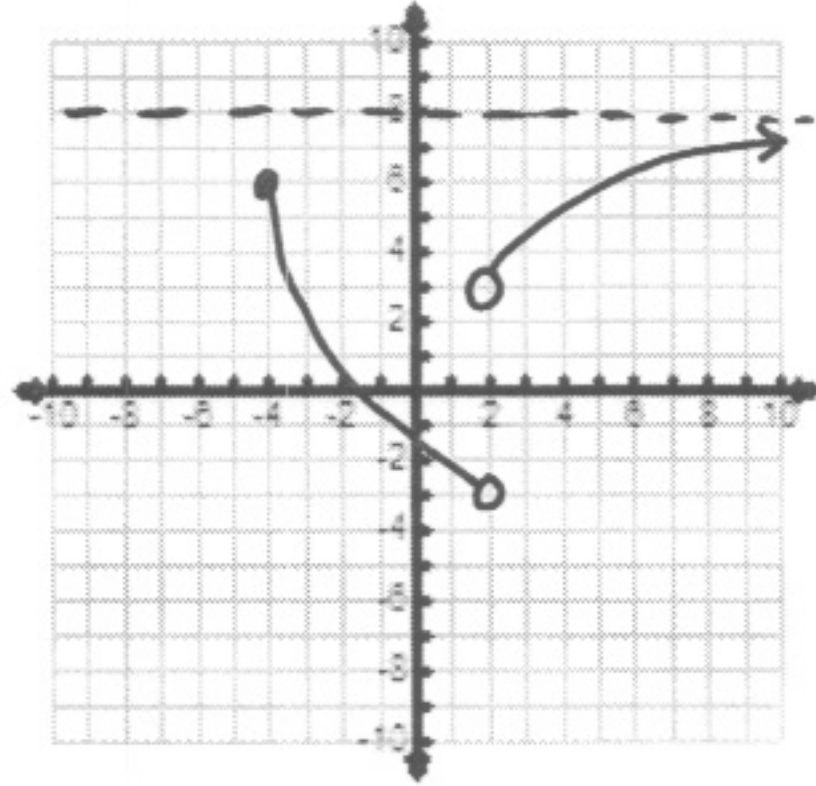
$$\begin{aligned} \textcircled{8} \quad g(x) &= 2x^2 - 2x + x \quad g(x+1) \\ g(x+1) &= 2(x+1)^2 - 2(x+1) + (x+1) \\ &= 2(x^2 + 2x + 1) - 2x - 2 + x + 1 \\ &= 2x^2 + 3x + 1 \end{aligned}$$

$$\begin{aligned} \textcircled{9} \quad g(x) &= |3x+1| + 4x \\ g(-10) &= |3(-10)+1| + 4(-10) \\ &= |-29| - 40 \\ &= -11 \end{aligned}$$

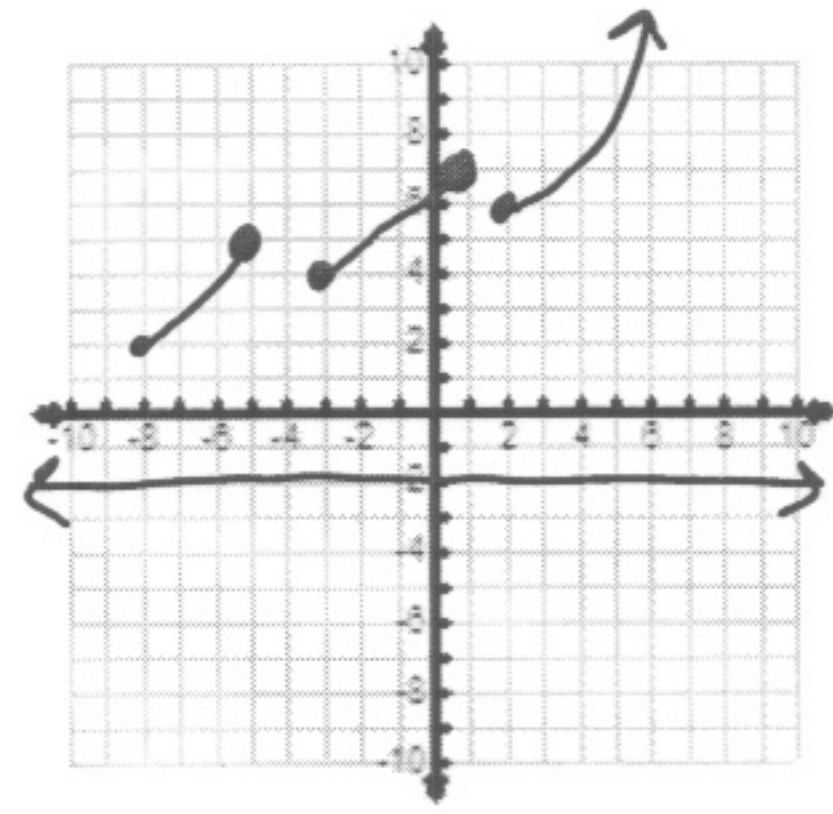
**A2H – Extra Review Domain/Range and Graphs** Name: \_\_\_\_\_ Date: \_\_\_\_\_

For #1-4: Identify the domain and range of each graph in  
 a) an English description  
 b) setbuilder notation  
 c) interval notation

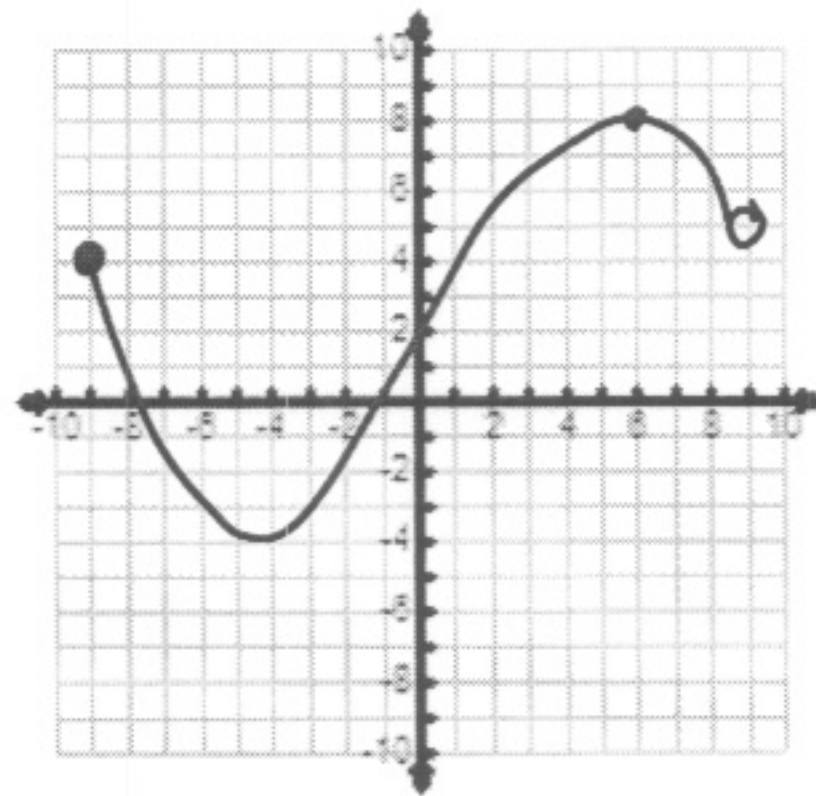
1)



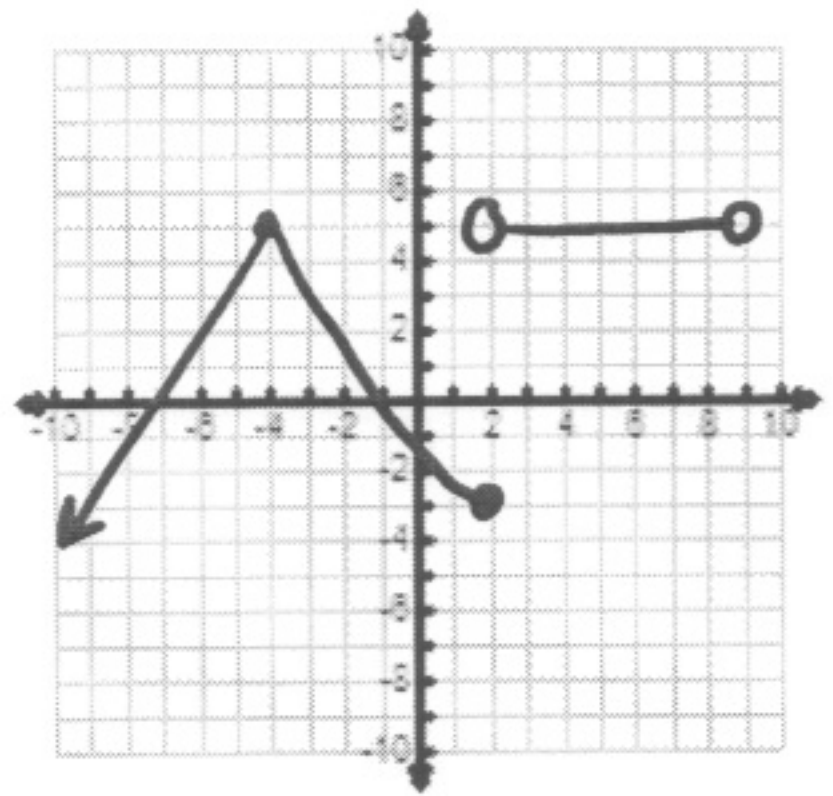
2)



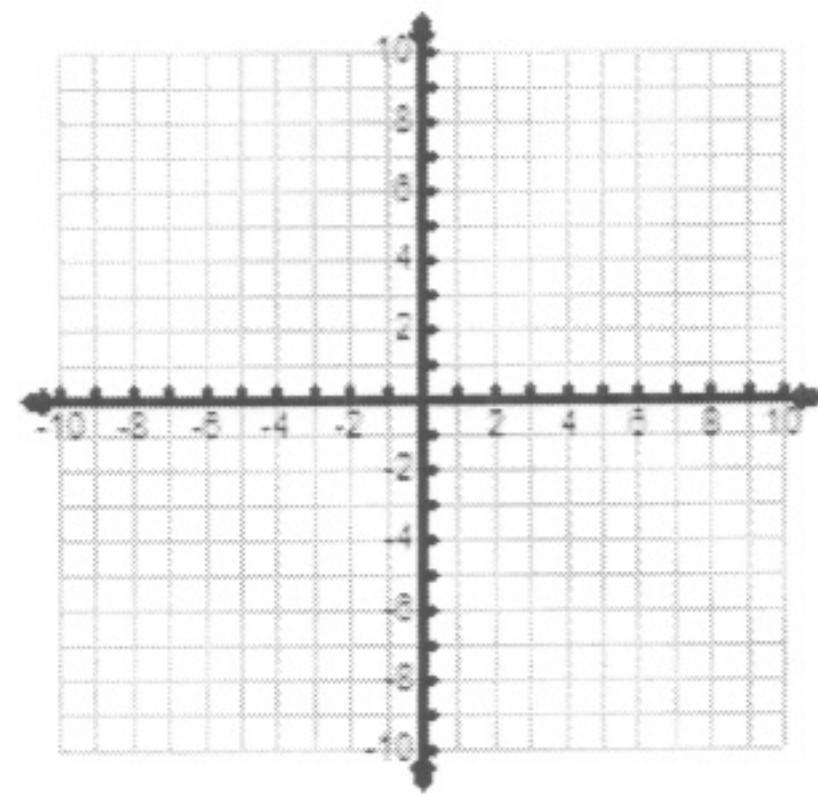
3)



4)



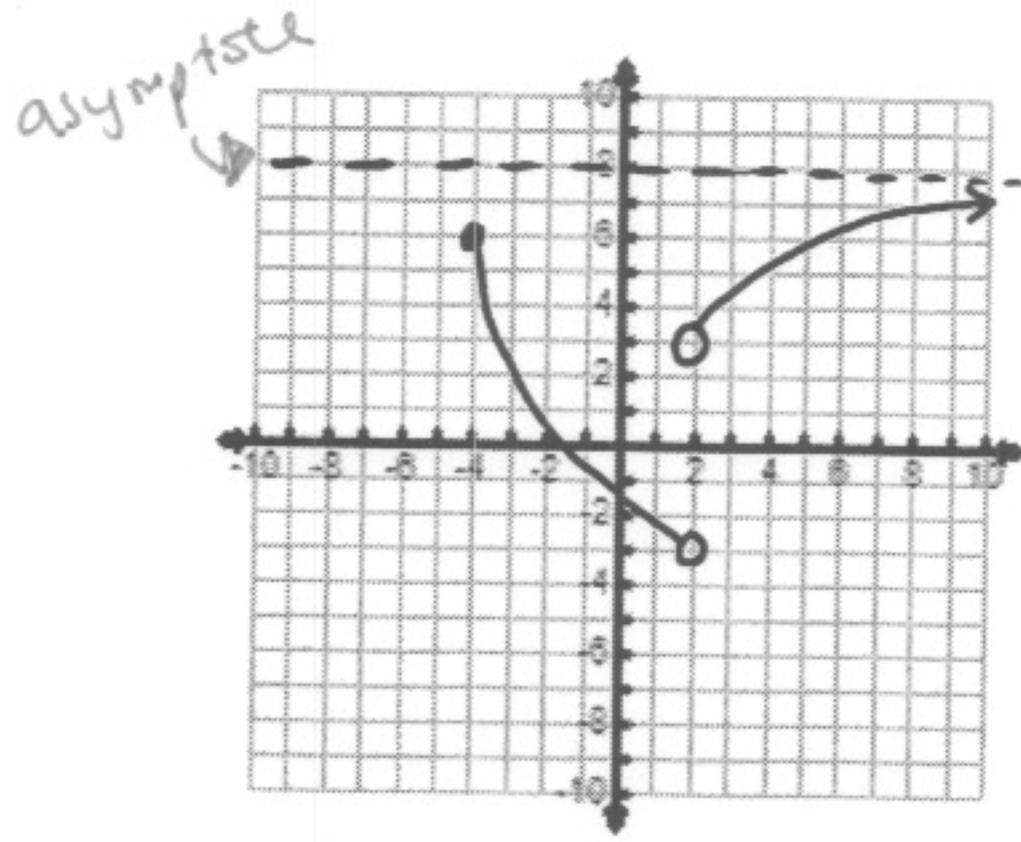
5) Sketch a function with  
 domain  $D: [-4, 2)$   
 and range  $R: (-6, -1]$



A2H – Extra Review Domain/Range and Graphs Name: key  
Date: \_\_\_\_\_

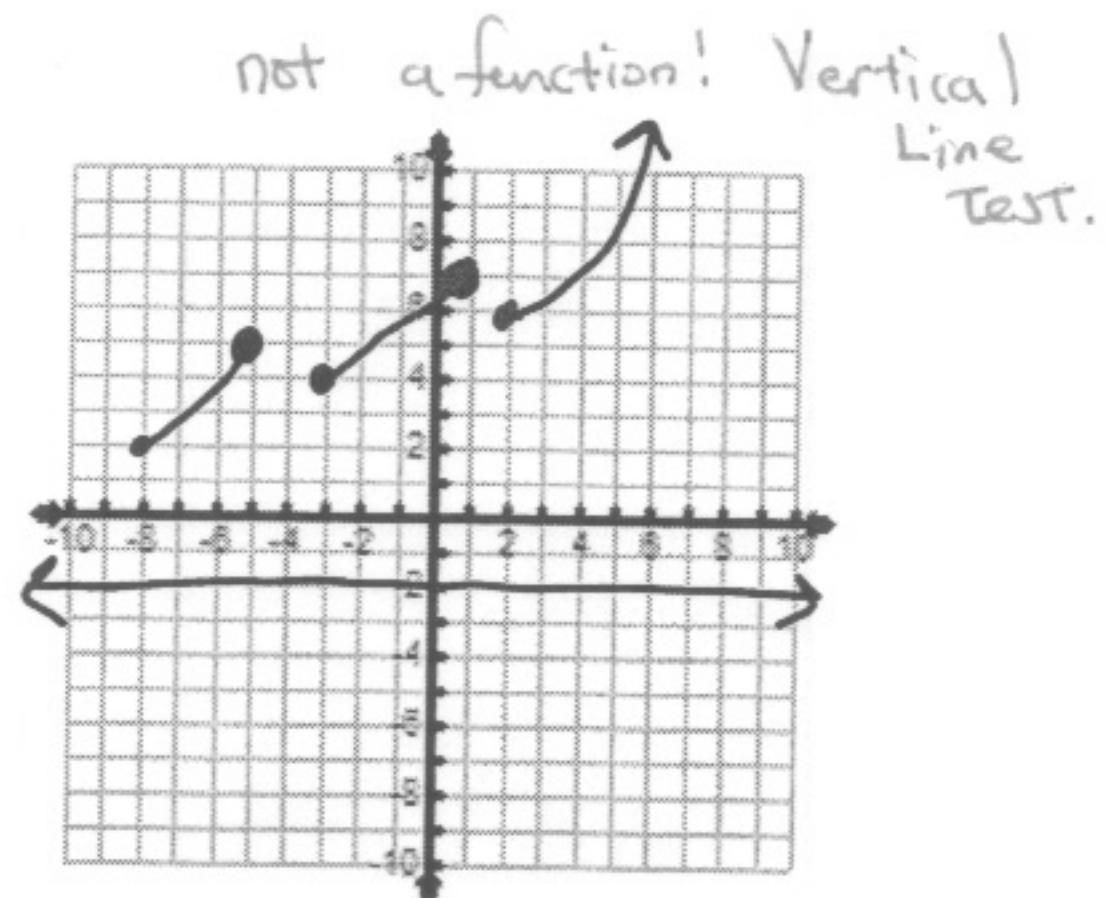
For #1-4: Identify the domain and range of each graph in  
a) an English description  
b) setbuilder notation  
c) interval notation

1)



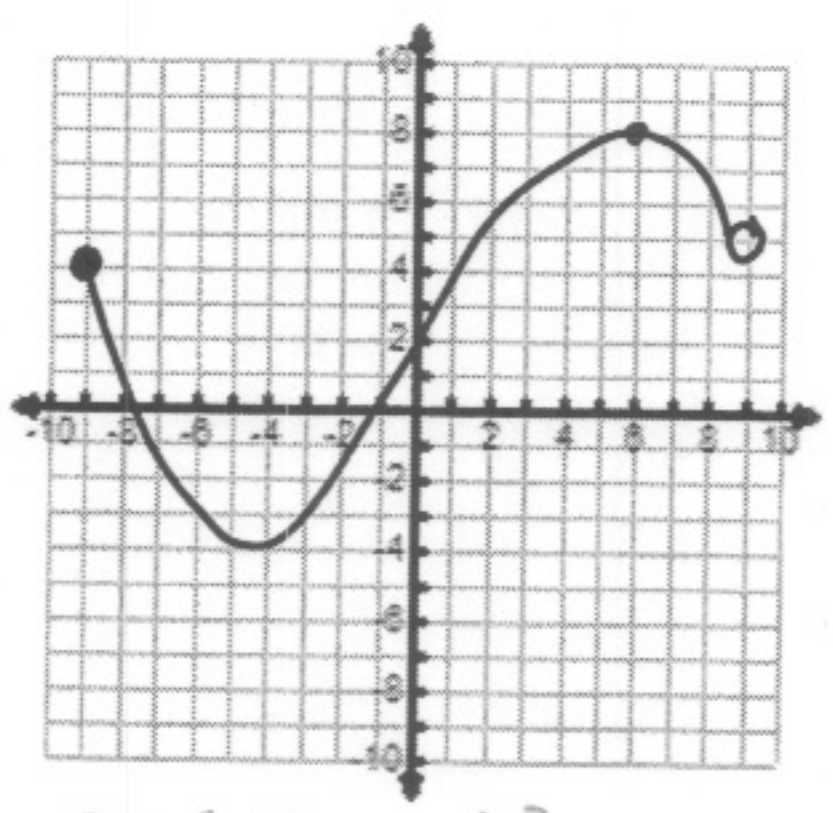
$D: \{ [-4, 2) \cup (2, \infty) \}$   
 $R: \{ (-3, 8) \}$

2)



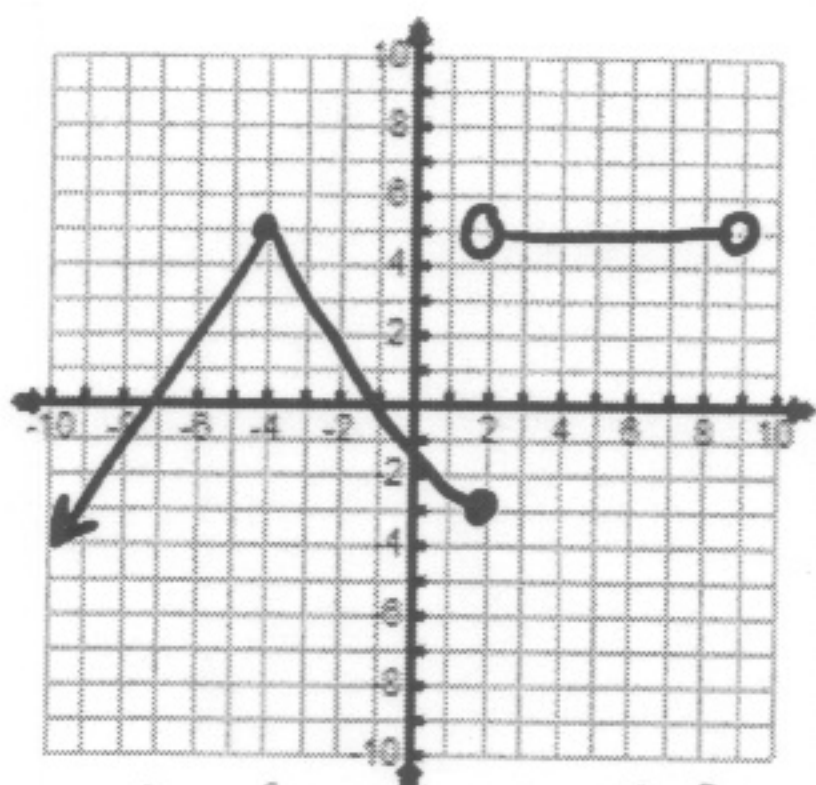
$D: \{ \mathbb{R} \}$   
 $R: \{ -2, [2, \infty) \}$

3)



$D: \{ [-9, 9) \}$   
 $R: \{ [-4, 8] \}$

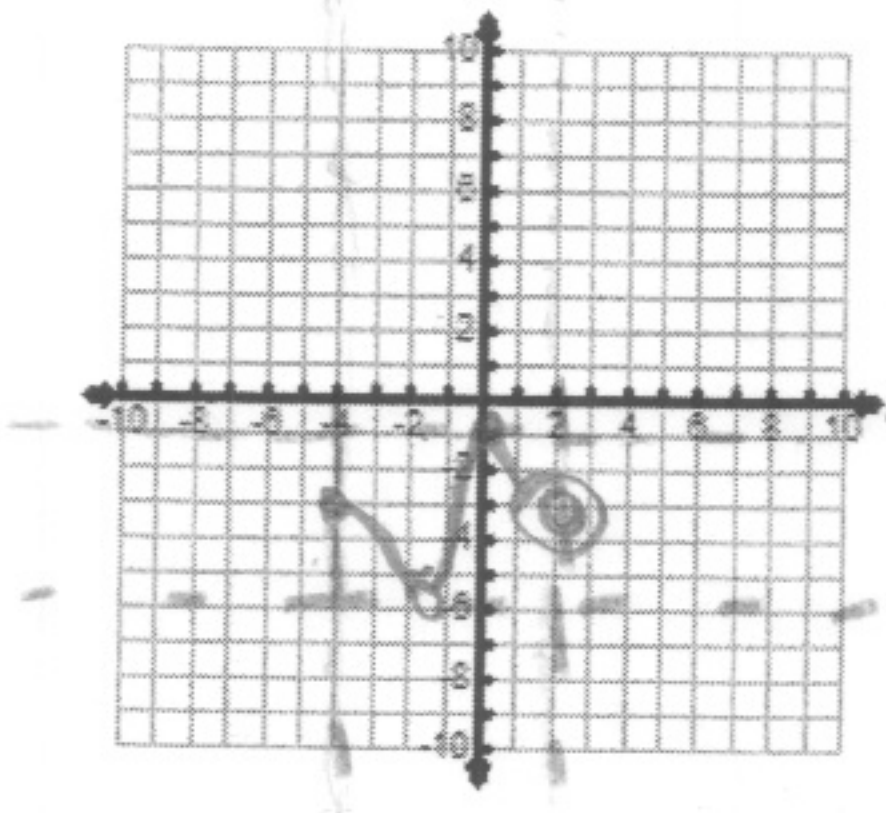
4)



$D: \{ (-\infty, 9) \}$   
 $R: \{ (-\infty, 5] \}$

5) Sketch a function with domain  $D: [-4, 2)$  and range  $R: (-6, -1]$

- ①
- ②
- ③



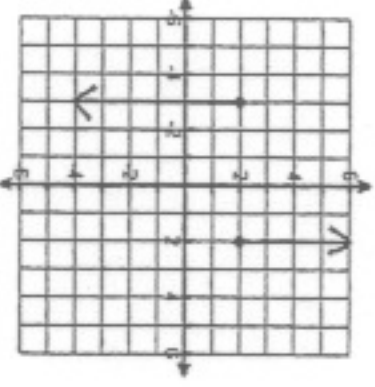
- 1) draw the asymptotes (walls)
- 2) plot points on each wall open / closed
- 3) connect each dot with a graph

Domain and Range Worksheet #1

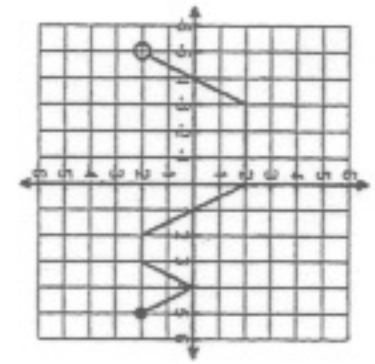
Name: \_\_\_\_\_

State the domain and range for each graph and then tell if the graph is a function (write yes or no).  
If the graph is a function, state whether it is discrete, continuous or neither.

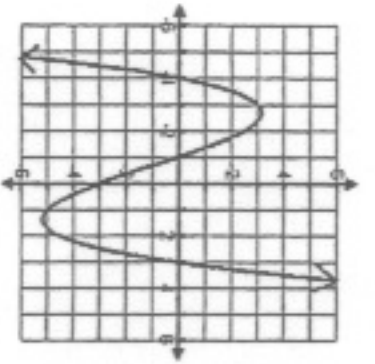
1) Domain \_\_\_\_\_  
Range \_\_\_\_\_  
Function? \_\_\_\_\_



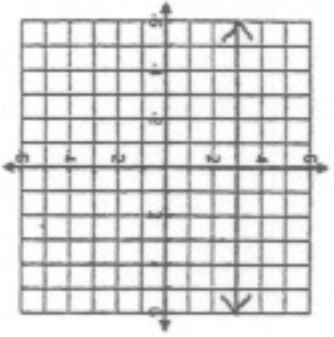
2) Domain \_\_\_\_\_  
Range \_\_\_\_\_  
Function? \_\_\_\_\_



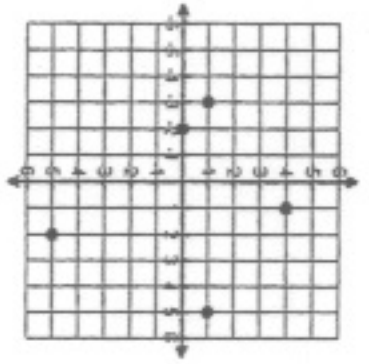
3) Domain \_\_\_\_\_  
Range \_\_\_\_\_  
Function? \_\_\_\_\_



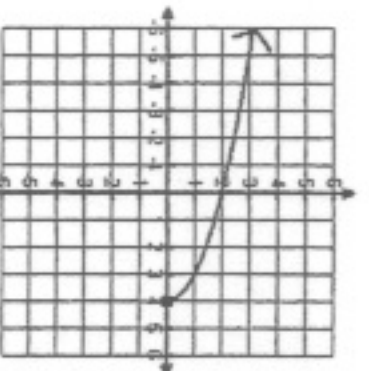
4) Domain \_\_\_\_\_  
Range \_\_\_\_\_  
Function? \_\_\_\_\_



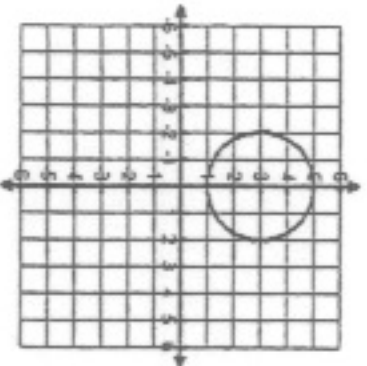
5) Domain \_\_\_\_\_  
Range \_\_\_\_\_  
Function? \_\_\_\_\_



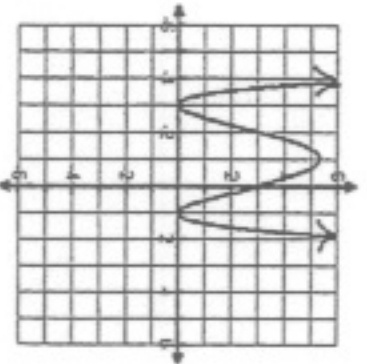
6) Domain \_\_\_\_\_  
Range \_\_\_\_\_  
Function? \_\_\_\_\_



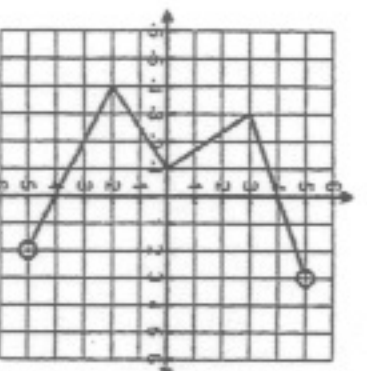
7) Domain \_\_\_\_\_  
Range \_\_\_\_\_  
Function? \_\_\_\_\_



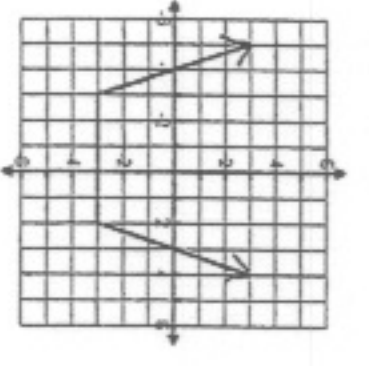
8) Domain \_\_\_\_\_  
Range \_\_\_\_\_  
Function? \_\_\_\_\_



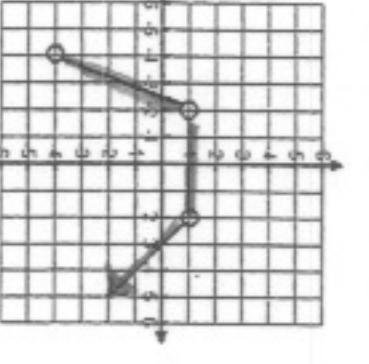
9) Domain \_\_\_\_\_  
Range \_\_\_\_\_  
Function? \_\_\_\_\_



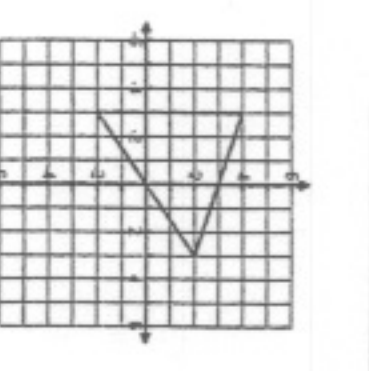
10) Domain \_\_\_\_\_  
Range \_\_\_\_\_  
Function? \_\_\_\_\_



11) Domain \_\_\_\_\_  
Range \_\_\_\_\_  
Function? \_\_\_\_\_



12) Domain \_\_\_\_\_  
Range \_\_\_\_\_  
Function? \_\_\_\_\_

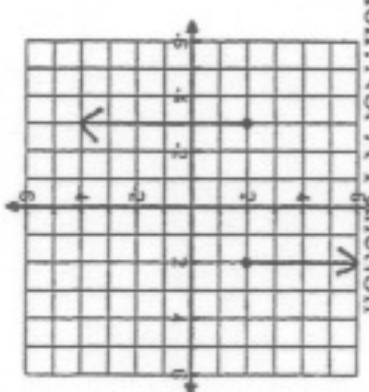


Answer Key Domain and Range Worksheet #1

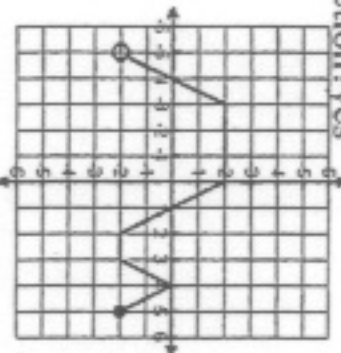
Name: \_\_\_\_\_

State the domain and range for each graph and then tell if the graph is a function (write yes or no).  
If the graph is a function, state whether it is discrete, continuous or neither.

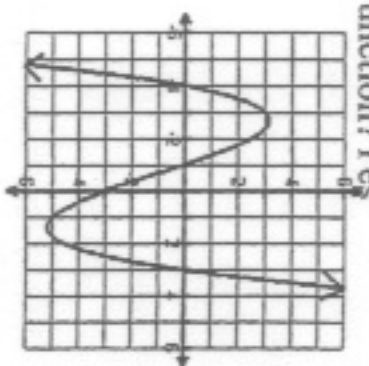
1) Domain:  $-3$  and  $-2$   
Range:  $(-\infty, \infty)$   
Function? Not A Function



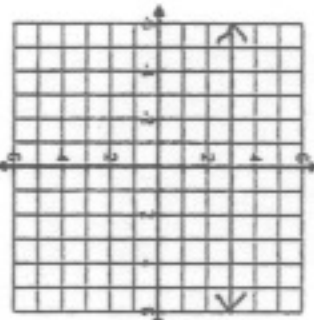
2) Domain:  $(-5, 5]$   
Range:  $[-2, 2]$   
Function? Yes



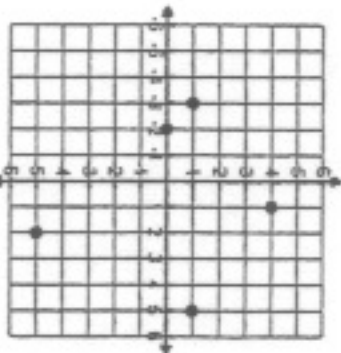
3) Domain:  $(-\infty, \infty)$   
Range:  $(-\infty, \infty)$   
Function? Yes



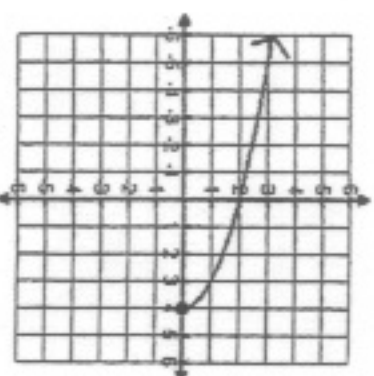
4) Domain:  $(-\infty, \infty)$   
Range:  $3$   
Function? Yes



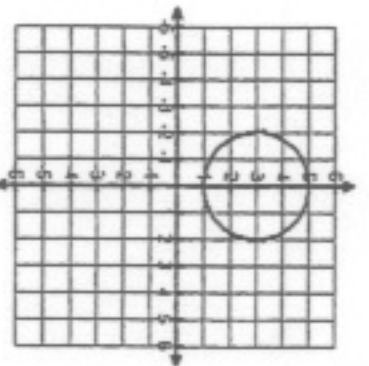
5) Domain:  $-3, -2, 2,$  and  $5$   
Range:  $-5, 0, 1$  and  $4$   
Function? Yes



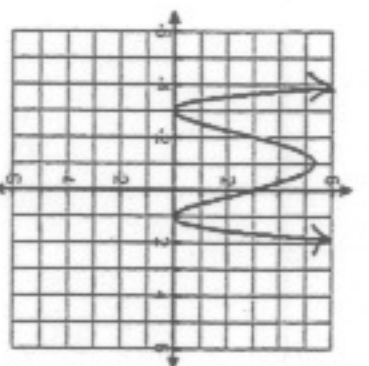
6) Domain:  $(-\infty, 4]$   
Range:  $[0, \infty)$   
Function? Yes



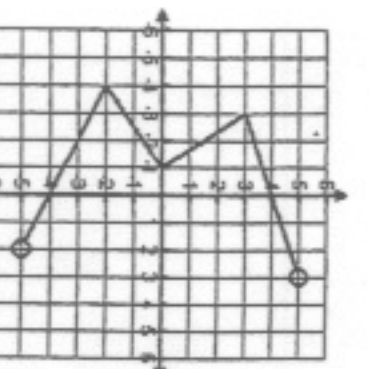
7) Domain:  $[-2, 2]$   
Range:  $[-2, 2]$   
Function? No



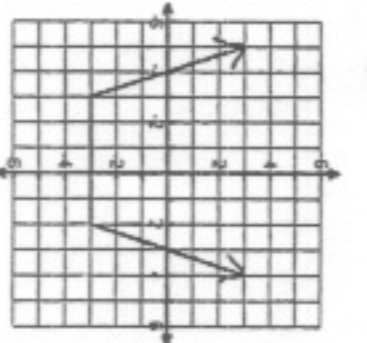
8) Domain:  $(-\infty, \infty)$   
Range:  $[0, \infty)$   
Function? No



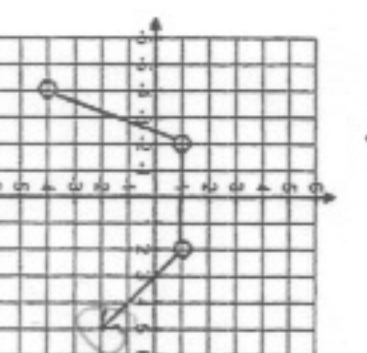
9) Domain:  $(-4, 3)$   
Range:  $(-5, 5)$   
Function? No



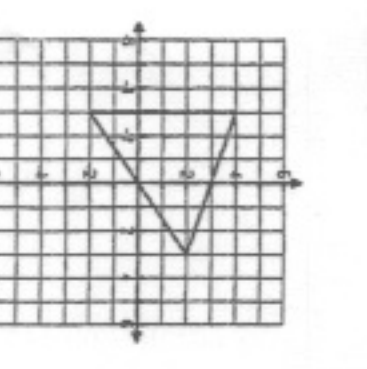
10) Domain:  $(-\infty, \infty)$   
Range:  $[-3, \infty)$   
Function? Yes



11) Domain:  $(-4, \infty)$   
Range:  $(-\infty, 1]$   
Function? Yes



12) Domain:  $[-3, 3]$   
Range:  $[-3, 4]$   
Function? No



now goes down