

Ch. 19 - Board Problem

① Throwing a frisbee twice problem.

First Throw: $(-150', 40^\circ)$

Second throw: $(65', 275^\circ)$

What is the final distance and angle in polar coordinates from the starting place?

change to standard form

② $y = -\frac{1}{2}(x+4)^2 - 8$

③ change to vertex form

$$y = 5x^2 - 10x + 18$$

Ch.19 RELATIONS, FUNCTIONS, DOMAIN AND RANGE

RELATIONS : _____

EX.1 $(1,1), (2,2), (3,9), (4,10), (5,15)$

RELATIONS ARE FUNCTIONS IF AND ONLY IF
THERE IS ONE Y FOR EACH X.

DOMAIN : _____

RANGE : _____

DOMAIN FOR EX.1 : _____

RANGE FOR EX.2 : _____

FUNCTION NOTATION: $F(x)=Y$

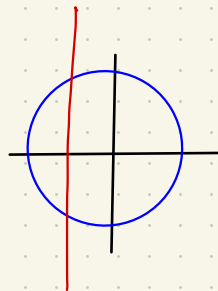
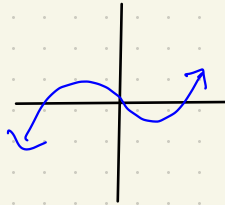
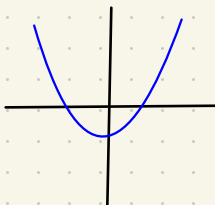
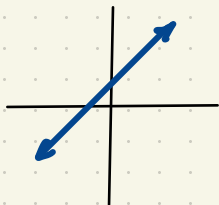
so if $y = 2x+1$, $f(x) = 2x+1$

$$f(3) =$$

$$f(-1) =$$

$$f(\sin x) =$$

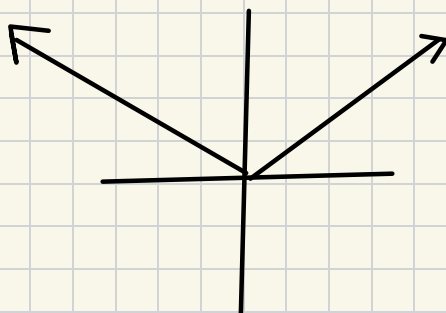
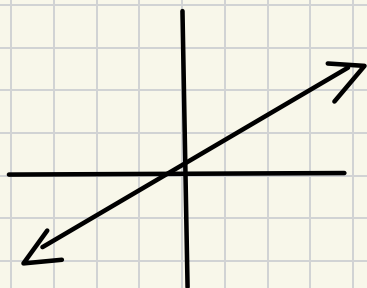
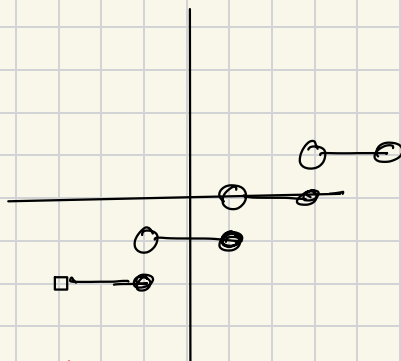
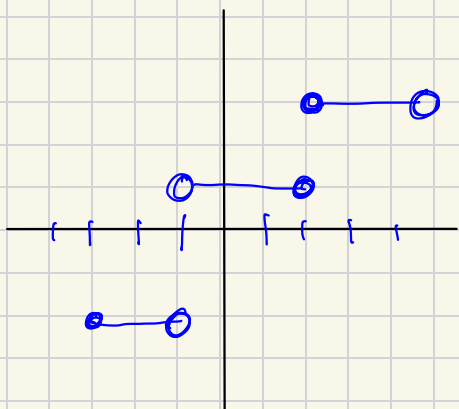
VERTICAL LINE TEST TO DETERMINE
IF A RELATION IS A FUNCTION.



$$f(x) = 2x+1 : \underline{\hspace{2cm}}$$

$$f(x) = x^2+2x : \underline{\hspace{2cm}}$$

$$x^2 + y^2 = 4 : \underline{\hspace{2cm}}$$



Domain: _____

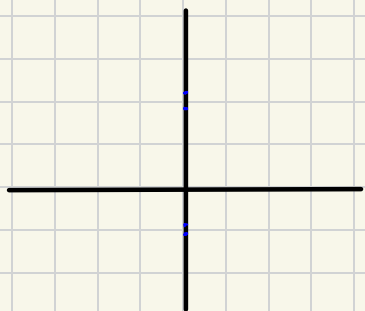
Domain: _____

Range: _____

RANGE: _____

$\mathbb{R} =$ _____

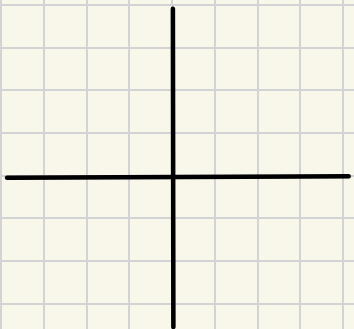
$$\sqrt{-1} = -1$$



$$f(x) = \begin{cases} -1 & \text{if } x \leq 0 \\ 2 & \text{if } x > 0 \end{cases}$$

Domain:

Range:



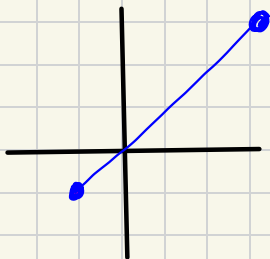
$$f(x) = \frac{1}{x} \quad x \neq 0$$

Domain:

RANGE:

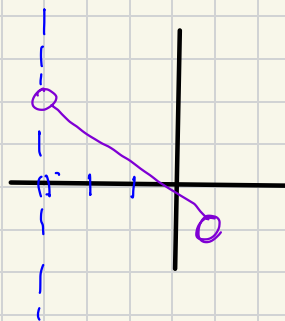
SQUARE BRACKETS

D:
R:



Soft BRACKETS

D:
R:



Ex 5

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

$$f(5) =$$

$$f(-2) =$$

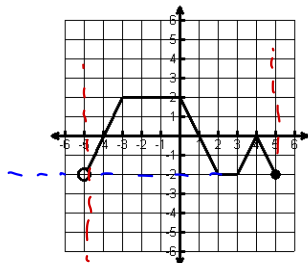
$$f(\cos x) =$$

Domain and Range Worksheet #1

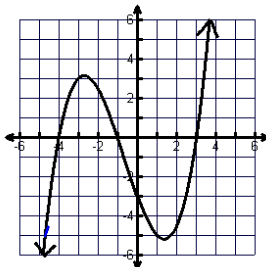
Name: _____

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.

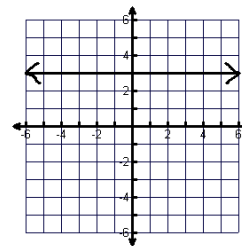
- 1) Domain _____
Range _____
Function? _____



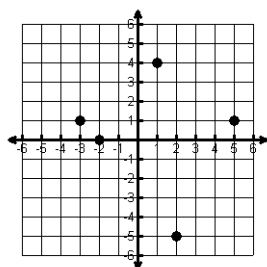
- 2) Domain _____
Range _____
Function? _____



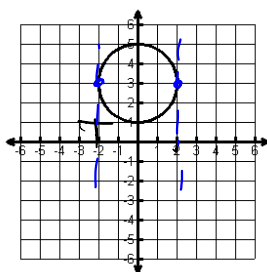
- 3) Domain _____
Range _____
Function? _____



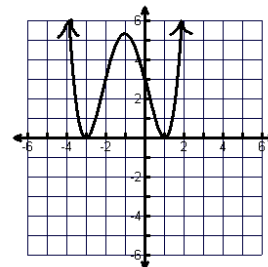
- 4) Domain _____
Range _____
Function? _____



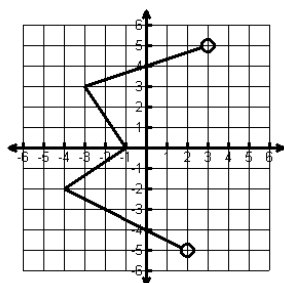
- 5) Domain _____
Range _____
Function? _____



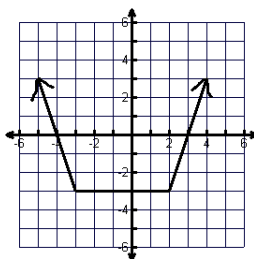
- 6) Domain _____
Range _____
Function? _____



- 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

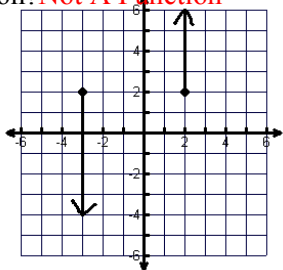
Name: _____

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 $(-\infty, \infty)$

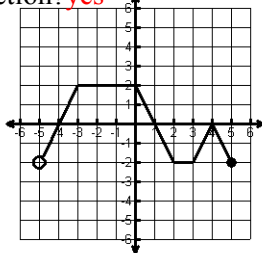
Function? **Not A Function**



2) Domain: $(-5, 5]$

Range $[-2, 2]$

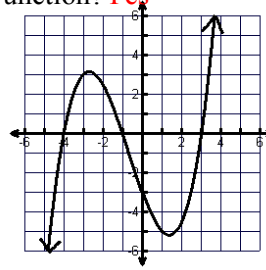
Function? **yes**



3) Domain $(-\infty, \infty)$

Range $(-\infty, \infty)$

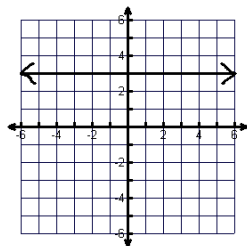
Function? **Yes**



4) Domain $(-\infty, \infty)$

Range 3

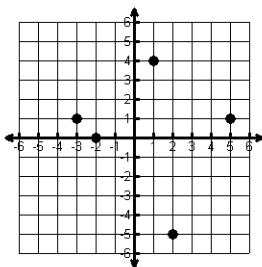
Function? **yes**



5) Domain -3, -2, 2, 4 and 5

Range -5, 0, 1 and 4

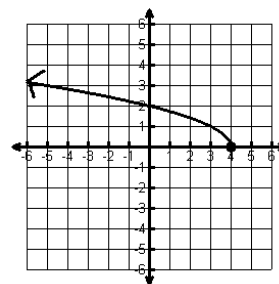
Function? **Yes**



6) Domain $(-\infty, 4]$

Range $[0, \infty)$

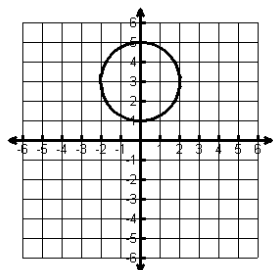
Function? **yes**



7) Domain $[-2, 2]$

Range $[-2, 2]$

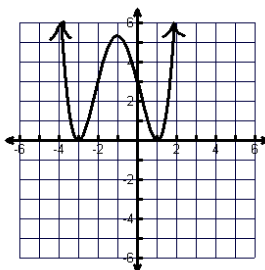
Function? **No**



8) Domain $(-\infty, \infty)$

Range $[0, \infty)$

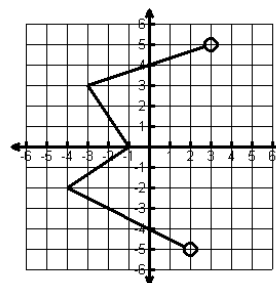
Function? **Yes**



9) Domain $[-4, 3]$

Range $(-5, 5)$

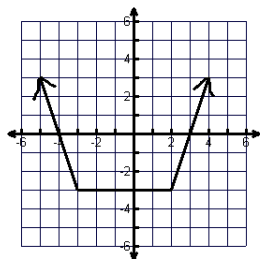
Function? **No**



10) Domain $(-\infty, \infty)$

Range $[-3, \infty)$

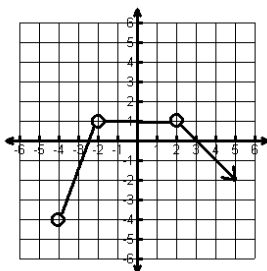
Function? **yes**



11) Domain $(-4, \infty)$

Range $(-\infty, 1]$

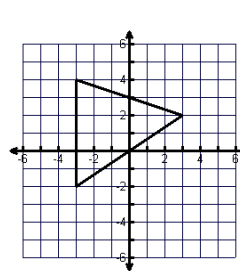
Function? **yes**



12) Domain $[-3, 3]$

Range $[-3, 4]$

Function? **No**



Tell whether each of the following relations is a function. If the relation is a function, state the domain and range. You may sketch a graph if you wish.

1. $\{(1, 6) (2, 5) (-6, 3) (-5, 6)\}$

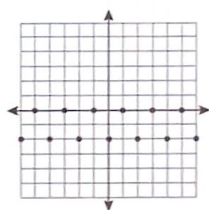
2. $\{(-1, -2) (-3, -2) (-2, 4) (3, -1)\}$

3. $Y = -1$

4. $x = 2$

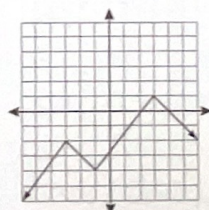
Answer the questions for each drawing. If the drawing is a relation, write NA after the questions about domain and range.

5.



Is this a function?
What is the domain?
What is the range?

6.



Is this a function?
What is the domain?
What is the range?