

Objective: Students will be able to determine when a relation is a function.

Function – a set of ordered pairs such that every input is paired with exactly one output

Domain – set of all x-values

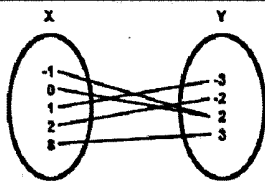
Can be written as:

Range – set of all y-values

- a list of numbers {0,1,5,8,10}

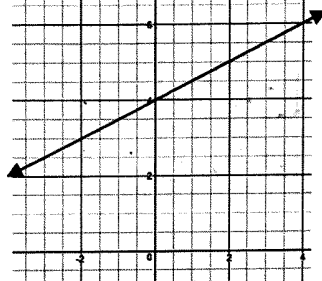
- interval notation → [-2,8] [4, ∞) (-∞, ∞)

Functions



Domain: {-1, 0, 1, 2, 8}

Range: {-3, -2, 2, 3}



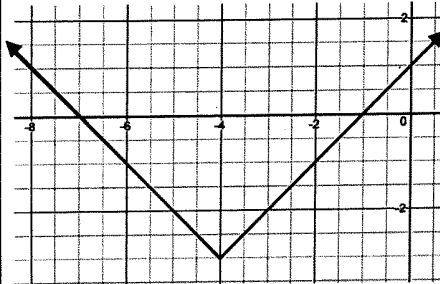
Domain: (-∞, ∞)

Range: (-∞, ∞)

x	y
-2	-2
-1	2
0	6
1	10
2	14

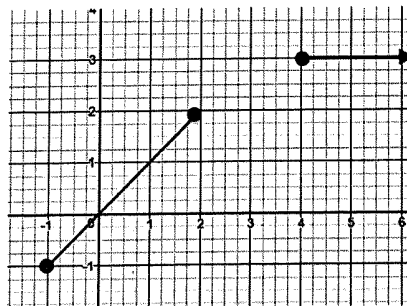
Domain: {-2, -1, 0, 1, 2}

Range: {-2, 2, 6, 10, 14}



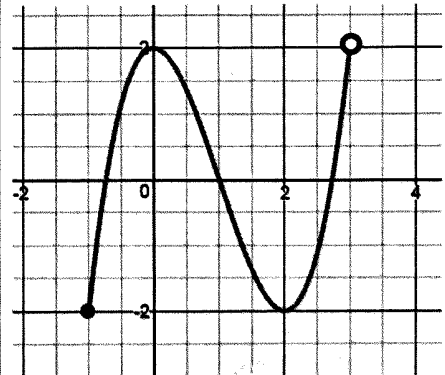
Domain: (-∞, ∞)

Range: [-3, ∞)



Domain: [-1, 2] [4, ∞)

Range: [-1, 2] [3, ∞)

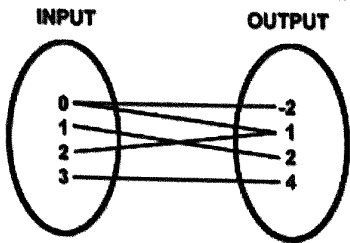


Domain: [-1, 3)

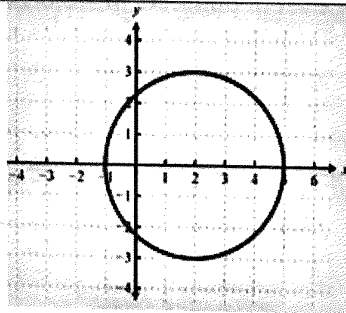
Range: [-2, 2]

Vertical Line Test: Quick check to verify if a graph is a function. If it is a function, any vertical line drawn should only intersect the graph once.

Not functions



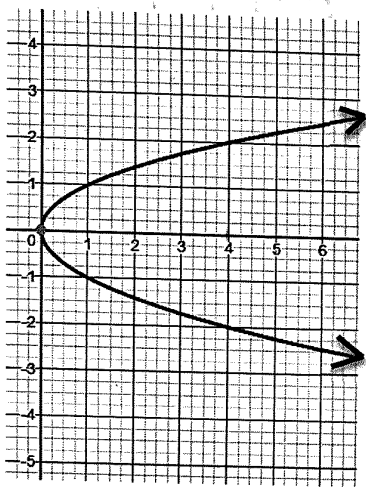
Domain: $\{0, 1, 2, 3\}$
 Range: $\{-2, 1, 2, 4\}$



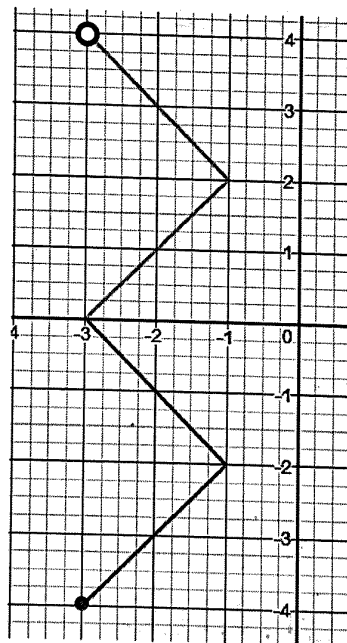
Domain: $[-5, 5]$
 Range: $[-5, 5]$

X	Y
1	2
2	4
1	5
3	8
4	4
5	10

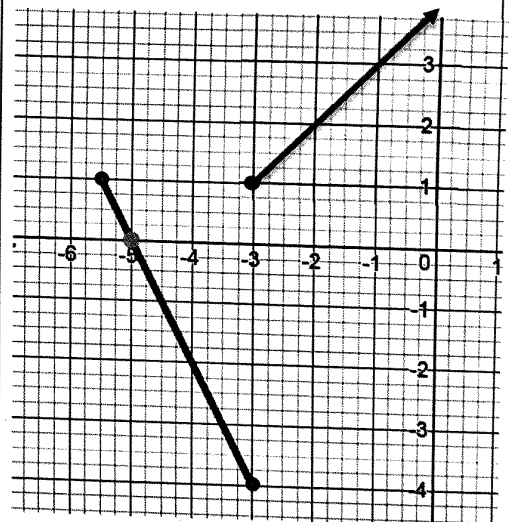
Domain: $\{1, 2, 3, 4, 5\}$
 Range: $\{2, 4, 5, 8, 10\}$



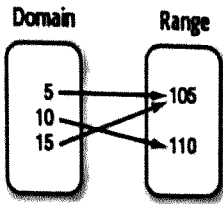
Domain: $[0, \infty)$
 Range: $(-\infty, \infty)$



Domain: $[-3, -1]$
 Range: $[-4, 4]$



Domain: $[-5.5, \infty)$
 Range: $[1, \infty)$



Function? YES NO

Domain: {5, 10, 15}

Range: {105, 110}

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

Function? YES NO

Domain: {-2, -1, 1, 2}

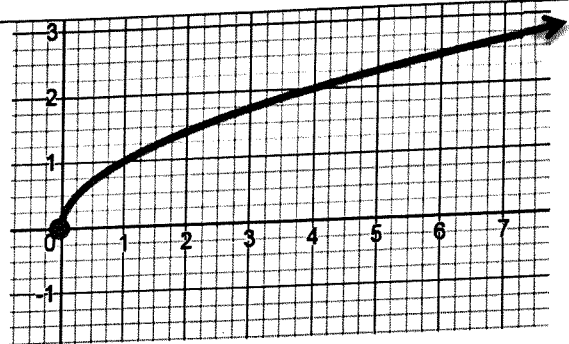
Range: {-1, 1, 0}

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

Function? YES NO

Domain: {-3, -2, -1, 3}

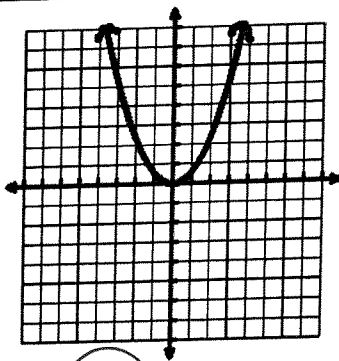
Range: {4, -1}



Function? YES NO

Domain: $[0, \infty)$

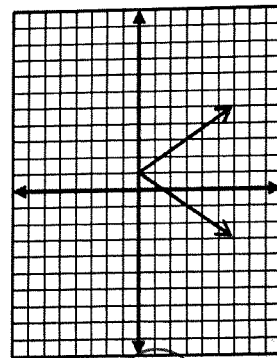
Range: $[0, \infty)$



Function? YES NO

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

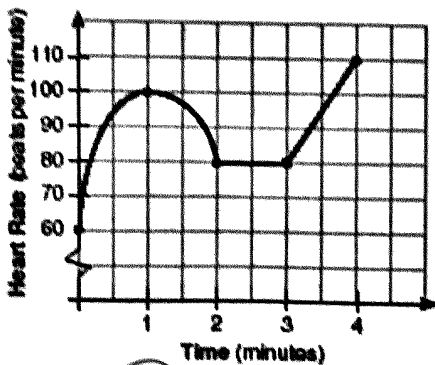
Range: $[0, \infty)$



Function? YES NO

Domain: $[0, \infty)$

Range: $(-\infty, \infty)$



Function? YES NO

Domain: $[0, 4]$

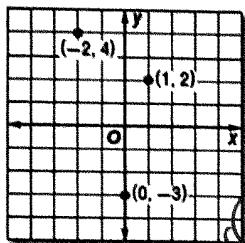
Range: $[60, 110]$

Week (w)	Balance (b)
1	\$10
2	\$24
3	\$38
4	\$52
5	\$66
6	\$80

Function? YES NO

Domain: $\{1, 2, 3, 4, 5, 6\}$

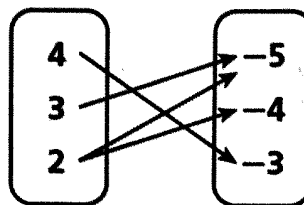
Range: $\{10, 24, 38, 52, 66, 80\}$



Function? YES NO

Domain: $\{-2, 1, 0\}$

Range: $\{4, 2, -3\}$

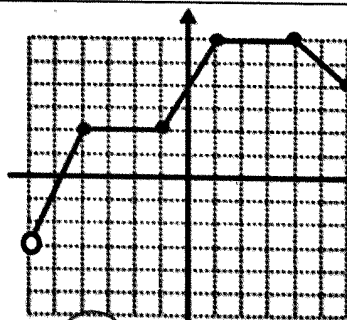


Function? YES NO

Domain: $\{4, 3, 2\}$

Range: $\{-5, -4, -3\}$

$\{(-6, -4), (-3, -1), (1, 2), (2, 4), (3, 7)\}$



Function? YES NO

Domain: $\{-6, -3, 1, 2, 3\}$

Range: $\{-4, -1, 2, 4, 7\}$

Function? YES NO

Domain: $[-6, 6]$

Range: $[-3, 6]$