

1. State if each relation is a function or not:

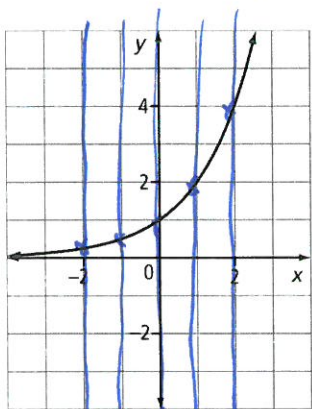
a) $(4, 1), (5, -2), (6, -5), (7, -8), (6, -11)$

b)

x	y
-2	4
-1	4
0	-8
1	16
2	16

NOT $x=6$ produces two outputs

c)

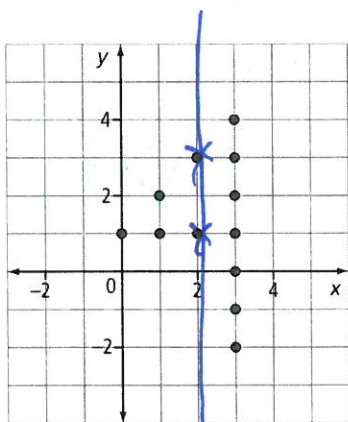


Function ✓
Passes vertical line test

Function ✓

Each x produces only one y.

d)



Not x
Fails Vertical Line Test

2. Could the following domain and range belong to a function? Explain your answer.

Domain $\{-3, 4, 6, 7\}$

Range $\{-4, -1, 0, 6, 7\}$

No, cannot be a function. With more range than domain values one of the domain values would have to repeat.

ex.

x	y
-3	-4
4	-1
6	0
7	6
?	7

3. Given the function $q(k) = 3k - 2$, determine:

a) $q(-4) = 3(-4) - 2$

$= -12 - 2$

$q(-4) = -14$

b) k if $q(k) = 13$

$13 = 3k - 2$

$+2 \quad +2$

$15 = 3k$

$\frac{15}{3} = \frac{3k}{3}$

$5 = k$

Over →

4. The formula for volume of a sphere is $V = \frac{4}{3}\pi r^3$

a) Explain why this relation is a function.

Function because each radius input will produce only one volume output.

b) Write this formula in function notation.

$$V(r) = \frac{4}{3}\pi r^3$$

c) State the domain and range of this function in both interval notation and set notation.

Domain

$$[0, \infty)$$

$$\{r \mid r \geq 0, r \in \mathbb{R}\}$$

Range

$$[0, \infty)$$

$$\{V \mid V \geq 0, V \in \mathbb{R}\}$$

* no negative
radii or
volumes