

COLLEGE ALGEBRA QUIZ

- (1) Is the following correspondence a function?

$$-2 \longrightarrow 9$$

$$4 \longrightarrow 5$$

$$6 \longrightarrow 1$$

$$8 \longrightarrow 3$$

Solution: Not a function since at least one member of the domain corresponds to more than one member of the range.

- (2) Determine if the following relation is a function, then state the domain and range.

$$\{(0, -1), (-2, -3), (-3, -4), (1, 2)\}$$

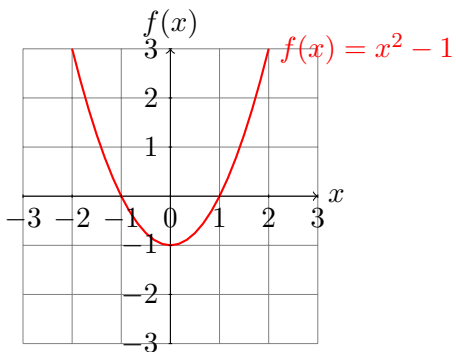
Solution: Yes this is a function, since each member of the domain is paired with only one member of the range.

- (3) Given, $f(x) = 4x^2 + 5x$, find $f(2)$ and $f(t + 1)$.

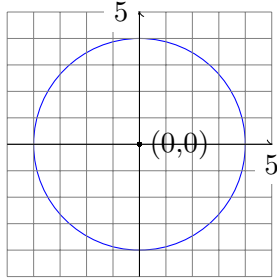
Solution: $f(2) = 26$, and $f(t + 1) = 4t^2 + 13t + 9$.

- (4) Graph the function, $f(x) = x^2 - 1$.

Solution:

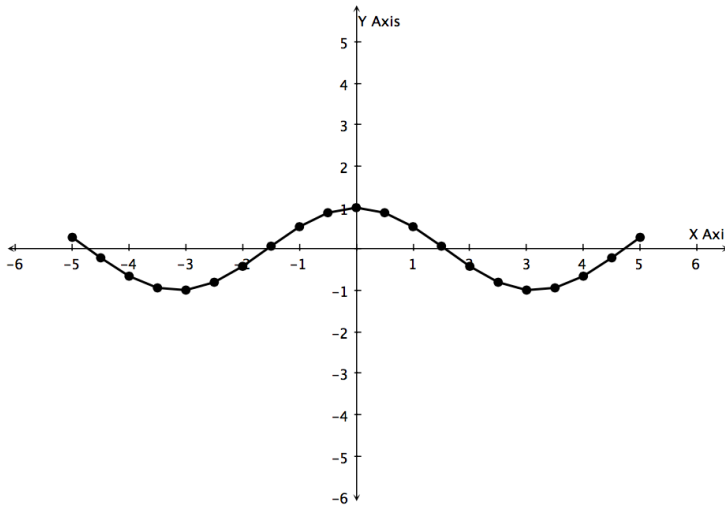


- (5) Determine if the graph belongs to a function.



Solution: Not a function, according to the vertical line test, if a vertical line can intersect the graph more than once, then the graph does not belong to a function.

- (6) Find the domain and range of the function.



Solution: Domain in interval notation: $[-5,5]$, Range in interval notation: $[-1,1]$

- (7) A test tube has 0.03 meters of oil inside of it, and is placed in water, where it floats. The following function provides the pressure, P , in pascals, at the bottom of the test tube, given the depth of the water in meters, w .

$$P(w) = 235.44 + 9810w$$

What is the pressure at the bottom of the test tube, if it is placed in 0.09 m of water? 0.50 m of water?

Solution:

Pressure when placed in 0.09 m is 1118.34 pascals.

Pressure when placed in 0.50 m is 5140.44 pascals.