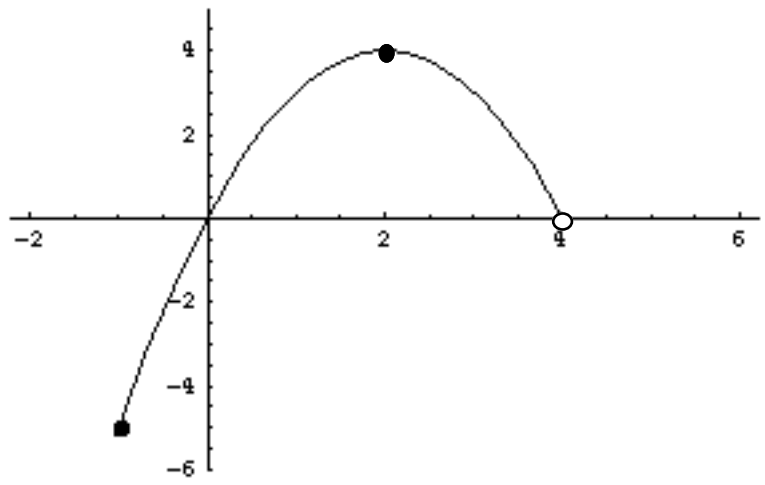
§ 3.2 The Graph of a Function

The **graph of a function f** is the collection of ordered pairs (x, f(x)) such that x is in the domain of f.

To find **domain** from graph look at the x - values (left to right)

To find **range** from graph look at the y - values (up and down)

Example:



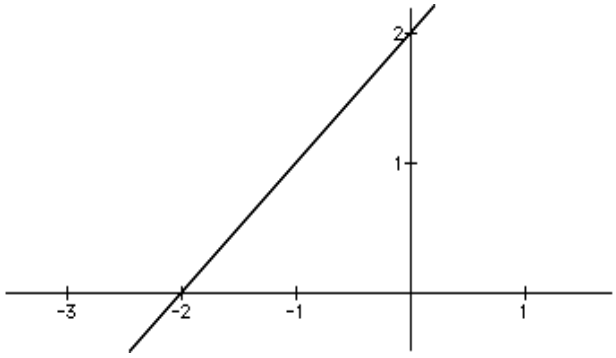
Domain =

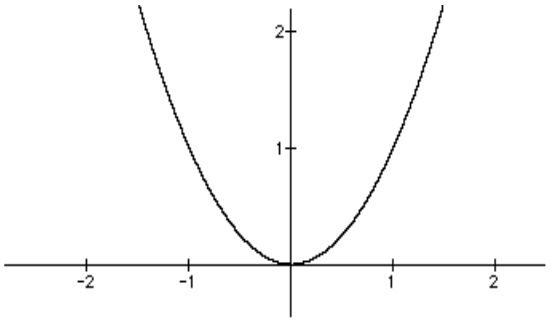
Range =

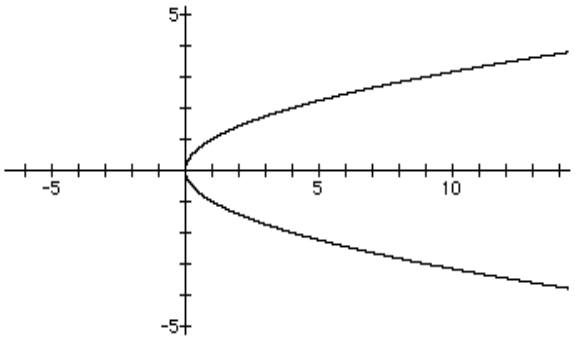
Vertical Line Test:

If every vertical line drawn intersects a graph in no more than one point, the graph is the graph of a function.

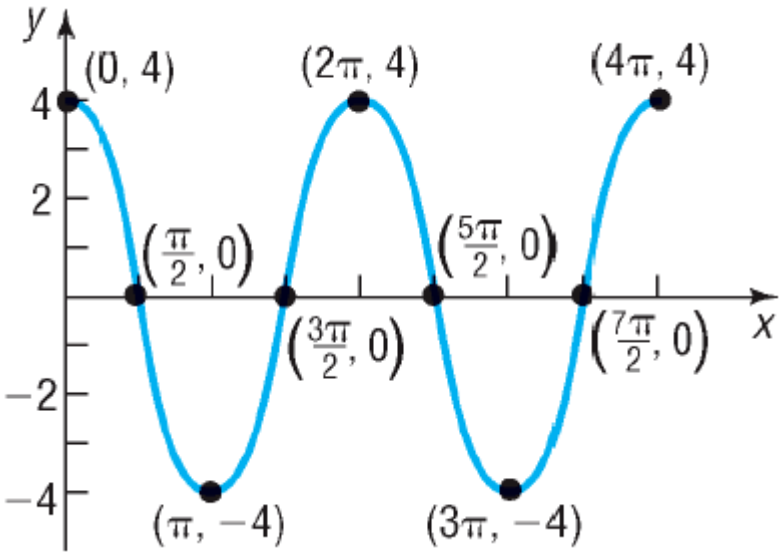
Example: Are the following graphs functions ?







Example: Obtaining Information from a graph



(a) What are $f(0)$, $f\left(\frac{3\pi}{2}\right)$, and $f(3\pi)$?

(b) What is the domain of f?

(c) What is the range of f?

(d) List the intercepts.

(e) How often does the line $y = 2$ intersect the graph?

(f) For what values of x does $f(x) = -4$?

(g) For what values of x is $f(x) > 0$?

Correction- this final answer in the online video should be
[0 , π/2) U (3π/2 , 5π/2) U (7π/2 , 4π]