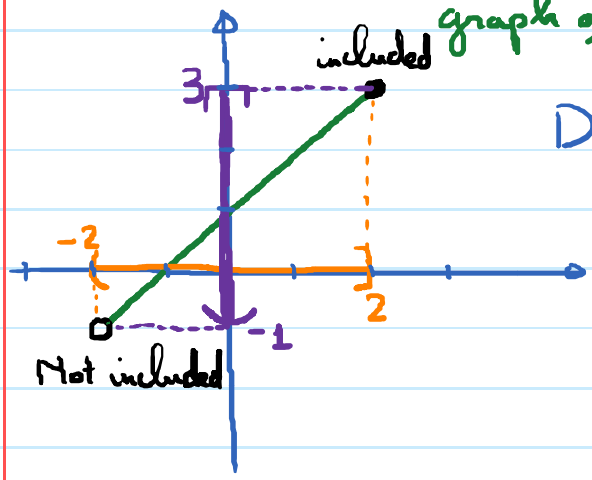
Range: Set of outputs (found on y-axis from the y-coordinate of the lowest point on the graph to the y-coordinate of the highest point on the graph)

E.g. Find the domain and the range of the function. Write the answer in interval notation or set builder notation.



graph of a function $y = f(x)$

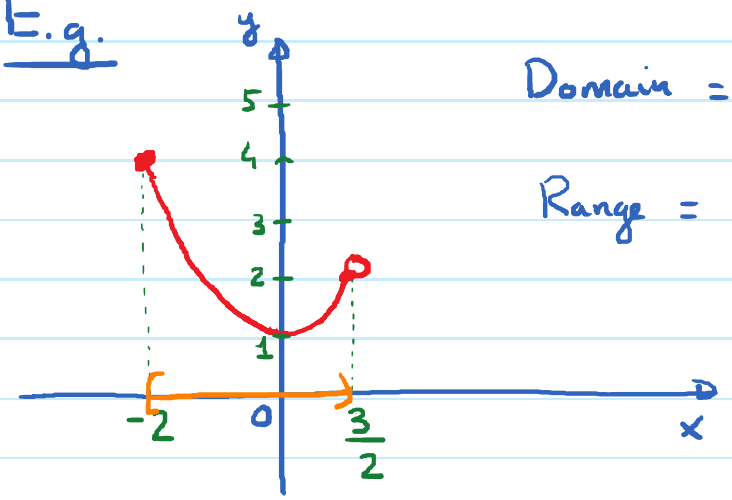
Domain: $= (-2, 2]$

(In set builder notation: $\{x \mid -2 < x \leq 2\}$)

Range $= (-1, 3]$

(In set builder notation: $\{x \mid -1 < x \leq 3\}$)

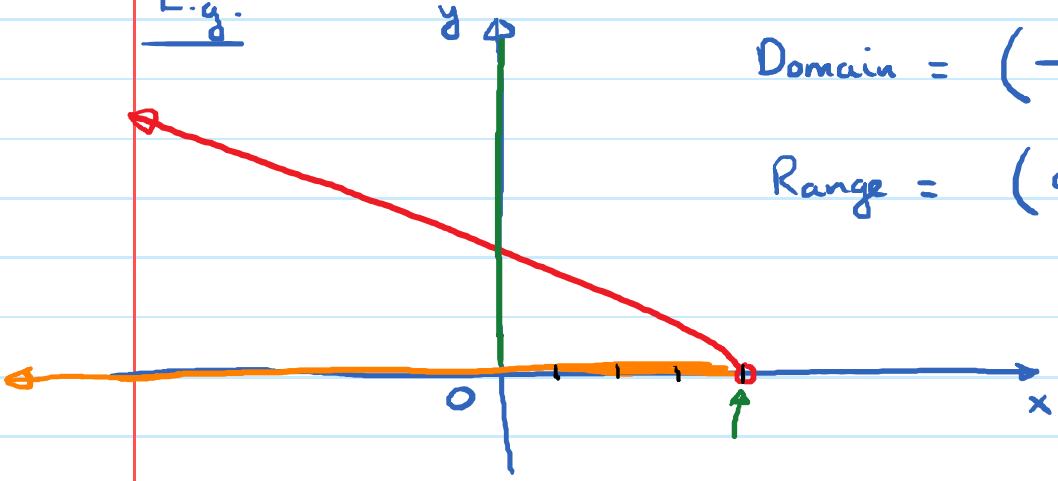
E.g.



Domain $= \left[-2, \frac{3}{2}\right)$

Range $= [1, 4]$

E.g.

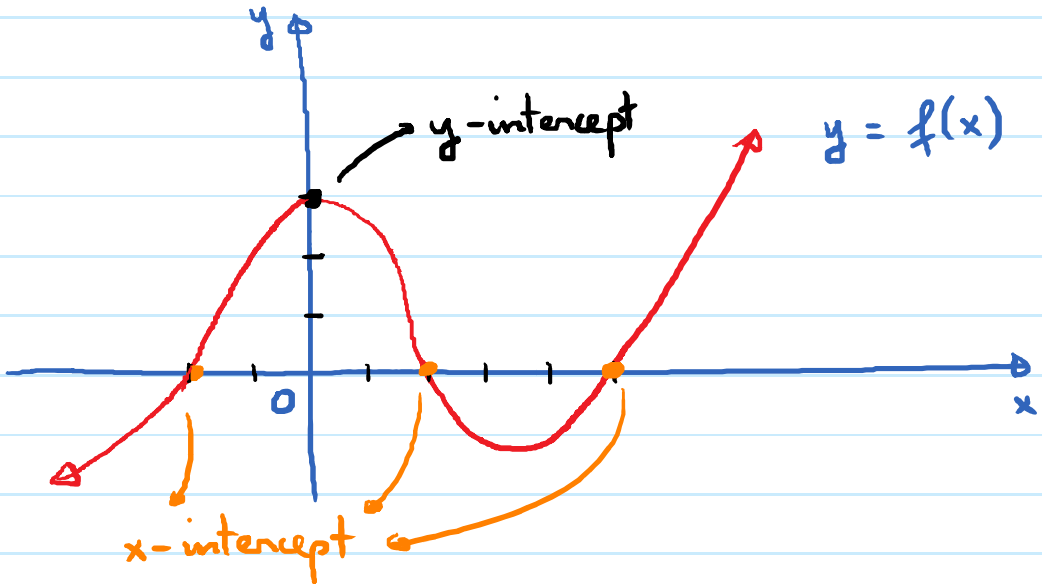


Domain $= (-\infty, 4)$

Range $= (0, \infty)$

Objective 4: Find x-intercept(s) and y-intercept and other information from graph.

* x-intercept and y-intercept.



x-intercept: is a point at which the graph crosses the x-axis

y-intercept: is a point at which the graph crosses the y-axis.

E.g. x-intercepts: $(-2,0)$; $(2,0)$; $(5,0)$

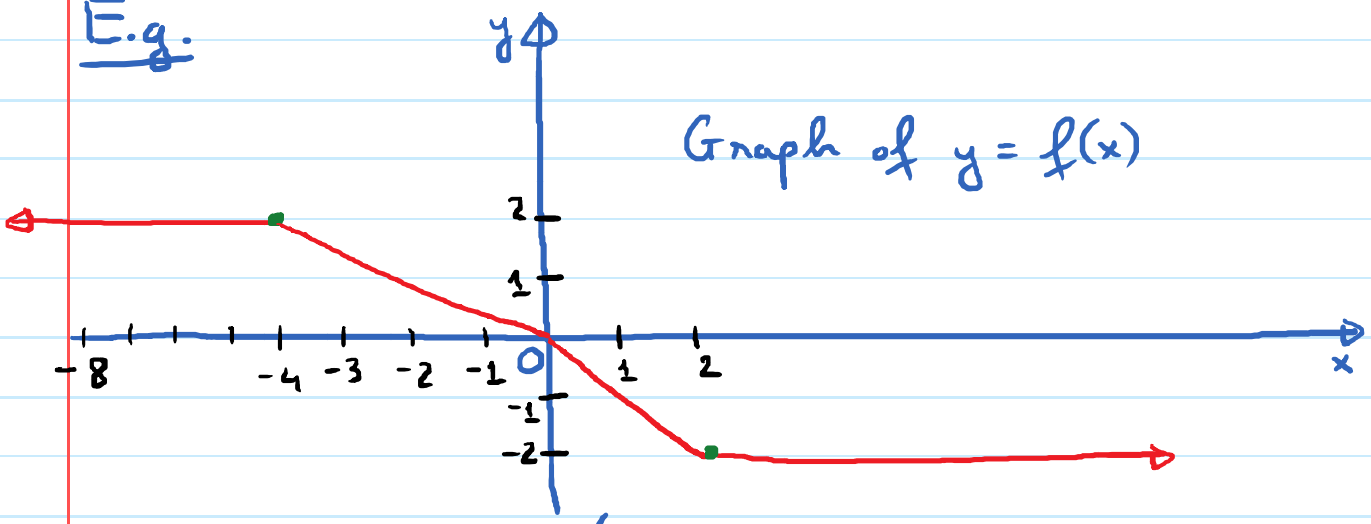
y-intercept: $(0,3)$

Note: y-coordinate of an x-intercept is zero.

Hence, the x-coordinate of an x-intercept is called a zero of the function.

Note: x-coordinate of the y-intercept is zero.

E.g.



Graph of $y = f(x)$

(a) $f(-4) = 2$ (go to $x = -4$ on x-axis, go up to the point on graph with $x = -4$, find y-coordinate of that point)

(b) $f(2) = -2$

(c) $f(-8) = 2$

(d) $f(-8000) = 2$

(e) $f(2020) = -2$

* x-intercept : $(0,0)$; y-intercept : $(0,0)$

* For what values of x is $f(x) = \boxed{-1}$?

b
y

$x = 1$.

* For what values of x is $f(x) = -2$?

Any value of x that is 2 on greater.

In interval notation: $[2, \infty)$