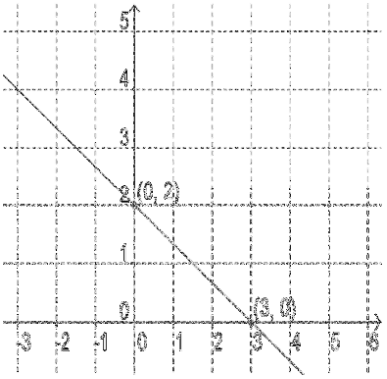
Unit 4

L3 Intercepts

- The point where a line intersects with an axis is called an **intercept**.
- Note that a horizontal line has no x-intercept, and a vertical line has no y-intercept
- A function can have **many x intercepts,** aka zeros, but **only one y intercept**, aka initial value.

Ex 1: What are the x-intercept and the y-intercept of this line

- x-intercept is 3
- note that the y coordinate there is 0



- y-intercept is 2
- note that the x coordinate there is 0

Ex 2: Calculate the x-intercept and the y-intercept for the line $y = 2x - 3$

- x-intercept: let y = 0 in the equation
  $0 = 2x - 3$
  $3 = 2x$
  $x = 1.5$
- y-intercept: let x = 0 in the equation
  $y = 2(0) - 3$
  $y = -3$

  or we could read the **constant** from the rule of the line

Ex 3: Calculate the x-intercept and the y-intercept for the line $y = 2x + 7$

- x-intercept: let y = 0 in the equation
  $2x + 7 = 0$
  $2x = -7$
  $x = -3.5$
- y-intercept: let x = 0 in the equation
  $y = 2(0) + 7$
  $y = 7$

Ex 4: Complete the table of values for the line $3x + 4.5y + 9 = 0$

X	Y
0	-2
-3	0

- If x = 0 then $4.5y + 9 = 0$
  $4.5y = -9$
  $y = -2$
- if y = 0 then $3x + 9 = 0$
  $3x = -9$
  $x = -3$

Practice:
4.3 # 1