PENANG SANGAM HIGH SCHOOL
DEPARTMENT OF MATHEMATICS/PHYSICS
YEAR 11 MATHEMATICS - WEEK 10

STRAND 4 **GRAPHS**

4.1 GRAPHS

Learning Objective
At the end of this lesson, students should be able to:
- Graph linear equations

Linear Functions
- A linear function is a function in which the variables has the highest power of "1" e.g. $y = 2x + 3$.
- A linear function will always have a straight line graph.
- A linear function may be written in the form $y = mx + c$ in which **m** is the gradient and **c** is the y-intercept.

Example
Sketch the graph represented by the equation $y = \frac{2}{3}x + 2$

Work out y-intercept →let x = 0

$$y = \frac{2}{3}x + 2$$

$$y = \frac{2}{3}(0) + 2$$

$$y = 0 + 2$$

$$y = 2$$

∴ *y-intercept=(0,2)*

The y- intercept of a line is the point at which the line crosses the y-axis (i.e. where the x-value = 0)

y-intercept = (0,y)

Work out x-intercept →let y = 0

$$y = \frac{2}{3}x + 2$$

$$0 = \frac{2}{3}x + 2$$

$$0 - 2 = \frac{2}{3}x + 2 - 2$$

$$-2 \times 3 = \frac{2}{3}x \times 3$$

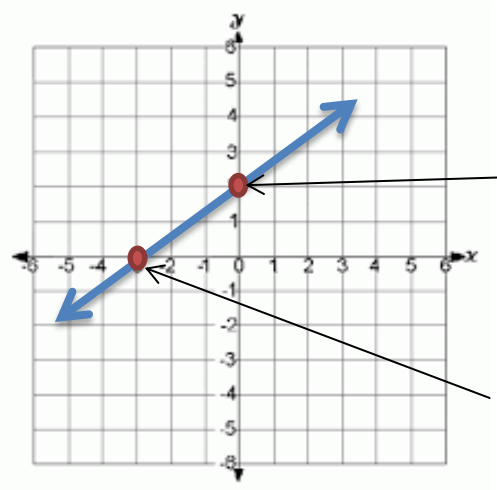
$$-\frac{6}{2} = \frac{2x}{2}$$

$$x = -3$$

∴ *x-intercept = (-3,0)*

The x- intercept of a line is the point at which the line crosses the x-axis (i.e. where the y-value = 0)

x-intercept = (x,0)



Plot the points (0, 2) and (-3, 0). Afterwards, draw a line through these points.

Exercise

Sketch the graph represented by the equation $y = \frac{3}{2}x + 6$

Hint

- ✓ ***Work out y-intercept →let x = 0***
- ✓ ***Work out x-intercept →let y = 0***
- ✓ ***Plot the points for x-intercept and y-intercept on a Cartesian Plane.***
- ✓ ***Afterwards, draw a line through these points.***