

SUVA SANGAM COLLEGE
YEAR 11
APPLIED MATHEMATICS
WORKSHEET 10

Strand	Graphs
Sub-Strand	Graphs
Content Learning Outcome	To study and illustrate graphs
Reference from Text	Pg 93 - 110

Questions

	CONCEPT IN BRIEF: Case 2: General Form: $y = ax^2 \pm bx$ Steps: (i) factorise (ii) calculate x-intercept ($y = 0$) (iii) calculate y-intercept ($x = 0$) (iv) find coordinate of Turning Point or Vertex: (x, y) $x = \frac{x_1 + x_2}{2}$, x_1 and x_2 are the x - intercepts y - value: substitute the x - value in the main equation. (v) Check coefficient of x^2 and sketch graph.
1.	A quadratic function is given as $y = 3x - x^2$. (a) Find the coordinates of the x - intercept. (b) Find the coordinates of the y - intercept. (c) Sketch the graph of this function clearly showing the intercepts and the turning point.
	CONCEPT IN BRIEF: <u>Cubic Graphs</u> General Form: $y = (x \pm a)(x \pm b)(x \pm c)$ or $y = (x \pm a)^2(x \pm b)$ Note: For repeated factors: $(x \pm a)^2$, there will be a turning point at the x-intercept obtained from this factor. Steps: 1. Find x-intercept ($y = 0$) 2. Find y - intercept ($x = 0$) 3. Check coefficient of x to determine shape of graph. If $+x^3 \rightarrow$  If $-x^3 \rightarrow$  4. Sketch the graph by turning the graph between the x-intercepts.
2.	Sketch the graph of the function $y = (x + 2)^2(x - 1)$ by showing the intercepts clearly.
	CONCEPT IN BRIEF: <u>Circles:</u> General form: $x^2 + y^2 = r^2$ (origin as the centre) Steps to sketch the graph (i) Plot the centre (a, b) (ii) Determine the x and y intercept. (iii) Plot four points 'radius' away from the centre in the up, down, left and right direction (iv) Sketch the graph.
3.	Sketch the graph of $2x^2 + 2y^2 = 98$ and state the domain and the range.