WORKSHEET 10

BA SANGAM COLLEGE   **YEAR 11**

SUBJECT: MATHEMATICS   **NAME OF STUDENT: _____**

| STRAND	*GRAPHS*
SUB-STRAND	*QUADRATIC*
Content Learning Outcome	➢ Solve linear equations simultaneously

Objective : at the end of the lesson students should be able to sketch quadratic graphs.

QUADRATIC GRAPHS IN THE FORM Y = X^2

- Is a parabolic graph

Some Observations:

1. If the coefficient of x^2 gets larger, the parabola becomes thinner (narrower), closer to its line of symmetry.

2. If the coefficient of x^2 gets smaller, the parabola becomes thicker (wider), further from its line of symmetry.

3. If the coefficient of x^2 is negative, the parabola opens downward
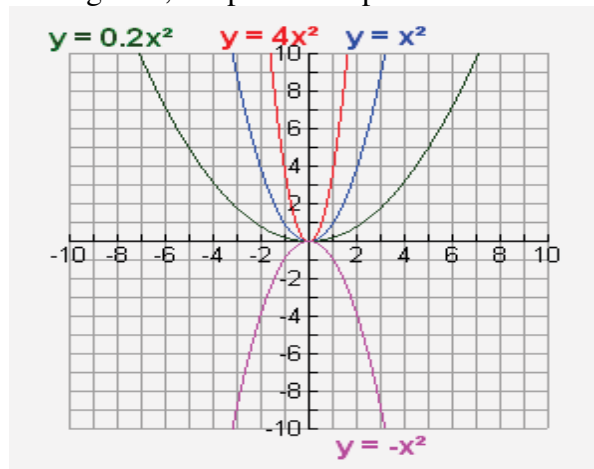
SHIFTS IN QUADRATIC GRAPHS OF THE FORM Y = X^2

To sketch this type of graphs, we need to find our x and y intercepts and the turning points/vertex of the graph.

EXAMPLE1

Quadratic in the form $y = x^2 - 4x$

1. First the expression $y = x^2 - 4x$ needs to be factorised.
So y = x (x -4) using common factor method.

2. Now find the x and y intercepts:
So x int = (0, 0) and (4, 0) and y int = (0, 0)

3. To find the turning point /vertex of the graph, we use the x intercepts and find the mid point of the two x intercepts using the formular :
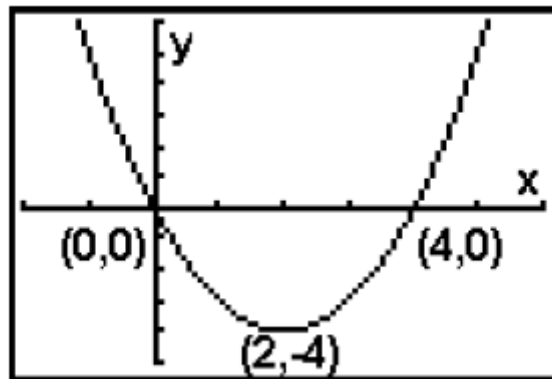
Vertex x $= \frac{1}{2} (x_1 + x_2)$
              $= \frac{1}{2} (0 + 4)$
              $= 2.$

Therefore x coordinate of the vertex is 2.

Now substitute this x coordinate of the vertex into the original graph equation to obtain the y coordinate of the vertex.

Vertex y $= (2)^2 - 4(2)$
             $= -4$

Therefore the graph will have a vertex at (2, -4)

ACTIVITY

Sketch the graph of the following:

a. $y = x^2 - 9$ (2m)   b. $y = (x - 3)^2$ (2m)