
Investigation on Quadratic functions

Part II (Vertex form)

Objective: At the end of this activity, students will be able to identify the vertex of quadratic equation of form $y = a(x - h)^2 + k$

Use of Graphing calculator is required for this activity (Casio cg20 or Casio cg50 is recommended)

1. Sketch the following curves using your GDC and answer the questions that follow.

- $y_1 = 2(x - 2)^2 + 5$
- $y_2 = -2(x - 2)^2 + 5$
- $y_3 = 4(x - 2)^2 + 5$
- $y_4 = \frac{1}{2}(x - 2)^2 + 5$
- $y_5 = -(x - 2)^2 + 5$

Write down the coordinates of vertex of each function

- _____
- _____
- _____
- _____
- _____

What do you observe by changing the value of a in $y = a(x - 2)^2 + 5$ in each equation?

2. Sketch the following curves using your GDC and answer the questions that follow.

- $y_1 = 2(x - 2)^2 + 5$
- $y_2 = 2(x - 3)^2 + 7$
- $y_3 = 2(x + 2)^2 + 5$
- $y_4 = 2(x - 1)^2 - 4$
- $y_5 = 2x^2 + 5$ or $2(x - 0)^2 + 5$

Write down the roots of each function

- _____

b) _____

c) _____

d) _____

e) _____

What do you observe by changing the value of h and k in $y = a(x - h)^2 + k$ in each equation?

Summarize your findings in this investigative activity

