lulumath

Key Features of Quadratic Relations

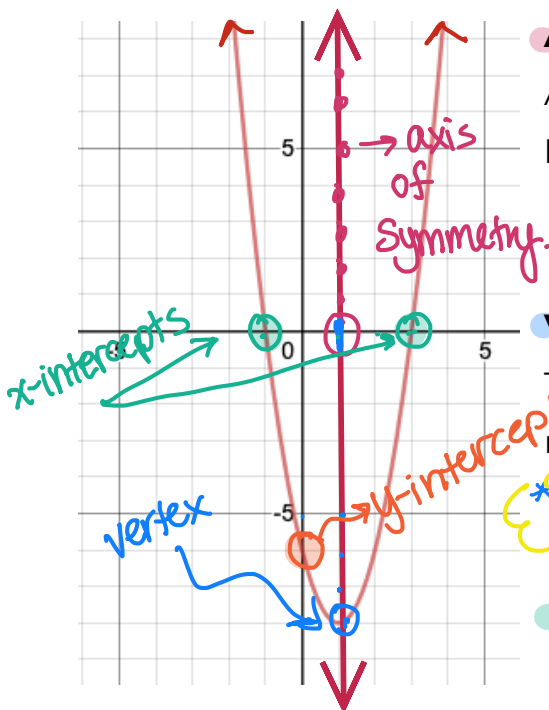Video Notes

Video Link

Key Features of Quadratic Relations

Background Info:
- Graphing Quadratic Relations

Use the graphs of the following quadratic relation to determine the key features of the parabola.

$y = 2x^2 - 4x - 6$

$y = mx + b$

Axis of symmetry:

A vertical line that cuts the parabola into two symmetrical halves. $x = 1$

axis of symmetry.

x-intercepts

vertex

y-intercept

Vertex: max min

The highest or lowest point of a parabola. AKA the maximum or minimum.

*The vertex will always occur on the axis of symmetry

min. $(1, -8)$

Roots/x-intercepts:

The value(s) of x that make(s) $y = 0$ in the graph

Where the parabola hits the x-axis.
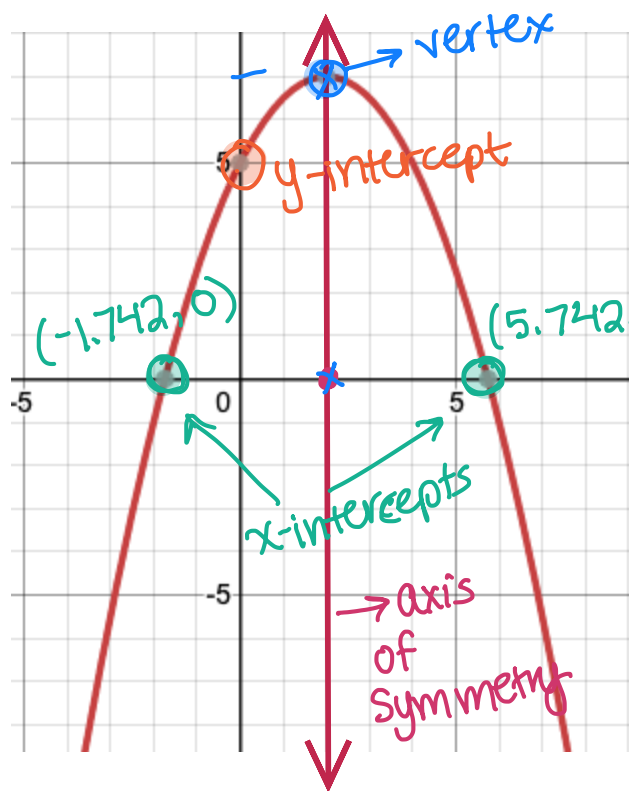
x-intercepts: $(-1, 0)$ and $(3, 0)$
Roots: $\{-1, 3\}$

Y-intercept:

The value of y that makes $x = 0$. Where the parabola hits the y-axis.

$(0, -6)$

Use the graphs of the following quadratic relation to determine the key features of the parabola.

$y = -0.5x^2 + 2x + 5$

vertex

y-intercept

$(-1.742, 0)$

$(5.742, 0)$

x-intercepts

→ axis of symmetry

Axis of symmetry:
A vertical line that cuts the parabola into two symmetrical halves.

$x = 2$

Vertex:
The highest or lowest point of a parabola. AKA the maximum or minimum.

$(2, 7) \rightarrow$ maximum

Roots/x-intercepts:
The value(s) of x that make(s) $y = 0$ in the graph
Where the parabola hits the x-axis.

x-intercepts: $(-1.742, 0)$ and $(5.742, 0)$
Roots: $\{-1.742, 5.742\}$

y-intercept:
The value of y that makes $x = 0$. Where the parabola hits the y-axis.

$(0, 5)$