Exploring Quadratic Relations

Parabola – a visual representation of a quadratic equation. Looks like a "U" openning up or down.

A graph of any quadratic relation of the standard form $y=ax^2+bx+c$, where $a\neq 1$, is a **parabola.**

a reveals the direction of opening of the parabola.
When positive, the parabola opens **up.**
When negative, the parabola opens **down.**

Important points on a Parabola:

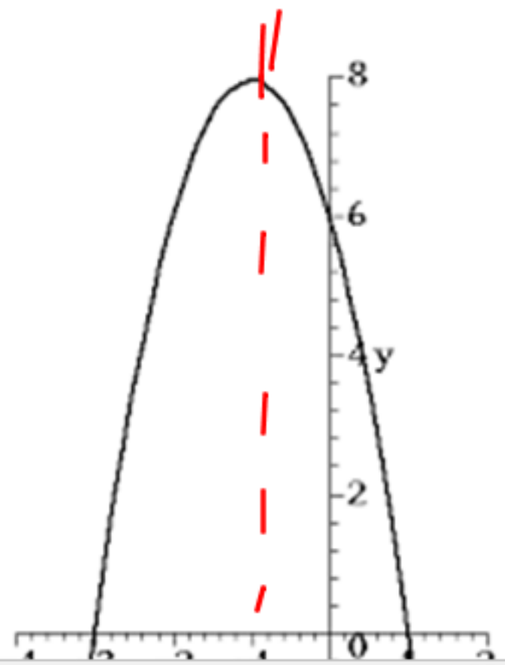
Axis of symmetry- where the parabola folds in half equally $(x=-1)$

Vertex-

Max/min value-

Zeros-

Y-intercept-



Axis of symmetry-

Vertex- the point where it changes direction (ex -> (-1, 8))

Max/min value- does the parabola have max or min
ex -> max value

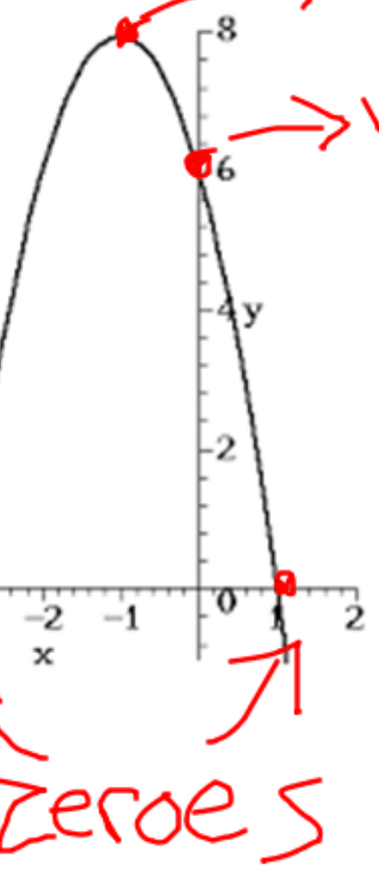
Zeros- where the parabola crosses the x axis (x-intercepts, roots) ex -> -3 and 1

Y-intercept- where the parabola crosses the y axis
ex (0, 6)

opens down

U -> min

∩ -> max



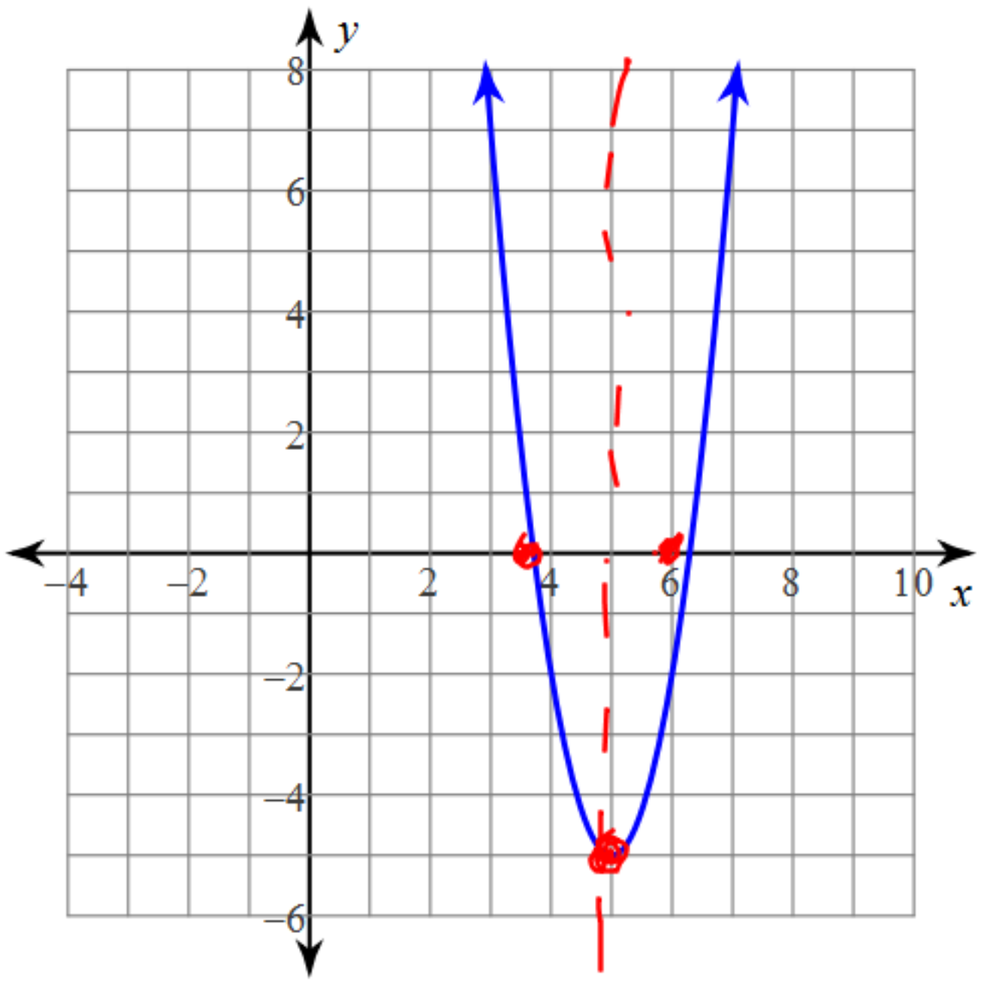
vertex

y intercept

zeroes

Use the information provided state the axis of symmetry, vertex, max/min, zeroes, and y intercept, and whether it opens up or down.

1)



a.o.s → x = 5

vertex → (5, −5)

∪ → min

zeroes → 4, 6

y-int → not shown

opens up.