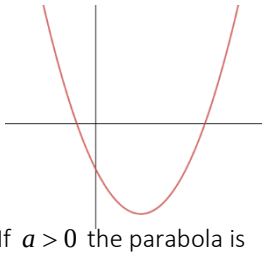
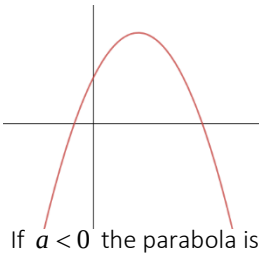
QUADRATIC GRAPHS | KEY POINTS

- Use the ***coefficient 'a'*** of the quadratic graph $y = ax^2 + bx + c$ to determine if it is ***'n' shaped*** or ***'u' shaped***.
- The graph of $y = ax^2 + bx + c$ crosses:
  - The ***y-axis*** at $(0, c)$.
  - The ***x-axis*** at the ***roots*** (solutions) of the equation $ax^2 + bx + c = 0$.



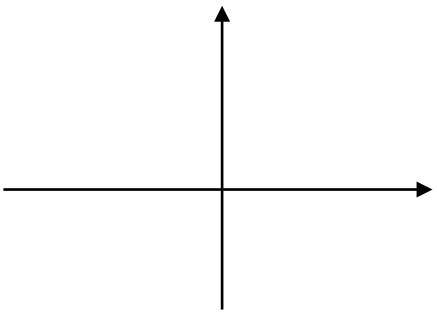
If $a > 0$ the parabola is ***positive*** ('u' shaped).



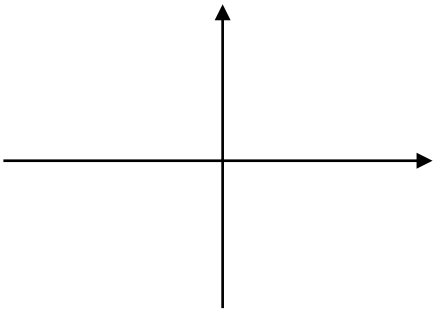
If $a < 0$ the parabola is ***negative*** ('n' shaped).

QUADRATIC GRAPHS | EXAMPLE-PROBLEM PAIRS

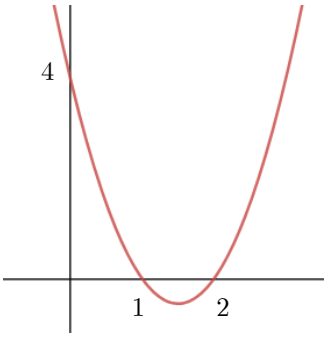
1E. Sketch the graph of $y = -2x^2 - 3x + 2$ giving all points of intersection with the coordinate axis.



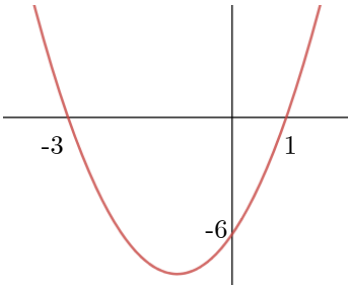
1P. Sketch the graph of $y = 2x^2 - 10x + 8$ giving all points of intersection with the coordinate axis.



2E. Find the equation of the graph, giving your answer in the form $y = ax^2 + bx + c$.

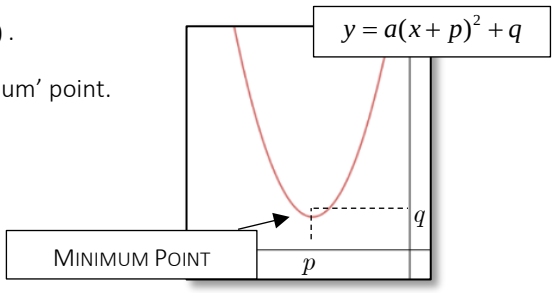


2P. Find the equation of the graph, giving your answer in the form $y = ax^2 + bx + c$.



TURNING POINTS OF QUADRATIC FUNCTIONS | KEY POINT

- The graph $y = a(x+p)^2 + q$ has a turning point at the point $(-p, q)$.
- This turning point can be described as either a 'maximum' or 'minimum' point.
  - e.g. $y = 2(x+4)^2 + 5$ has a minimum point at $(-4, 5)$



TURNING POINTS OF QUADRATIC FUNCTIONS | EXAMPLE-PROBLEM PAIRS

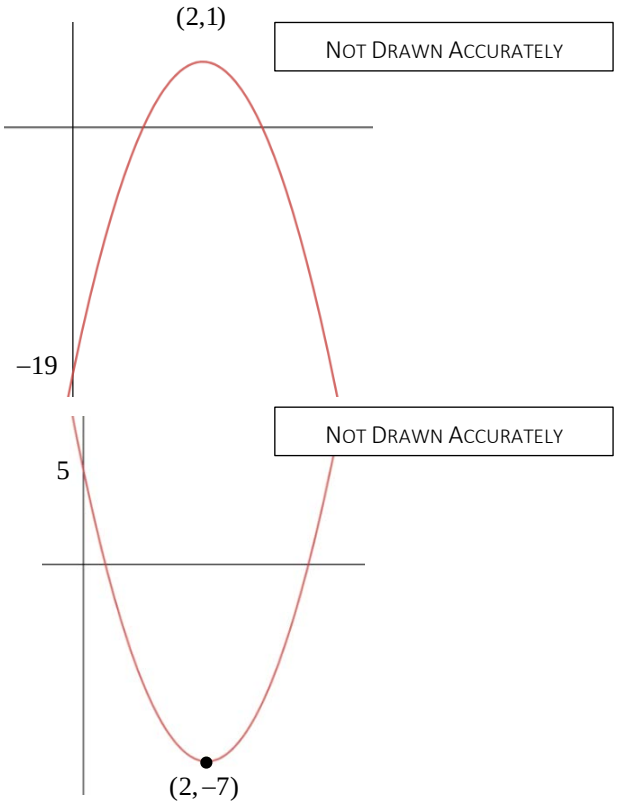
1E. State the turning point of $y = 2x^2 - 10x + 3$.

Determine also whether the turning point is a minimum or a maximum point.

1P. State the turning point of $y = -x^2 - 3x - 7$.

Determine also whether the turning point is a minimum or a maximum point.

2E. Find the equation of the quadratic graph shown on the right.



2P. Find the equation of the quadratic graph shown on the right.