The graphs of quadratic functions, also known as parabolas, are all around us.

The arc of a shot at a basket in basketball, or the path of a dive into a swimming pool can be parabolas and when plotted on graphs, these parabolas are described by quadratic equations.

This is a minimum parabola, which has an equation of the form y equals x subtract a all squared plus b. The quadratic equation can be identified in the completed square form from the turning point (a,b).

The turning point is negative three, negative four, giving the equation y equals x plus three all squared subtract four.

A parabola with a maximum turning point is in the form negative bracket x subtract a all squared plus b.

The turning point on this parabola is four, ten, so the equation of this parabola is y equals negative bracket x subtract four, all squared plus ten.

For both maximum and minimum parabolas, it is important to know that the axis of symmetry is always at the point where x equals a. The axis of symmetry is x equals negative three.

The graph crosses the y-axis when x equals zero.

You can use this knowledge to insert values into our equation, y equals x plus three all squared, subtract four, and determine specific points where required.

The y –intercept is found when x equals zero. For the equation y equals x plus three all squared subtract four, the y intercept is found by: y equals zero plus three all squared, subtract four, which equals nine subtract four, which equals five.

The y-intercept has the coordinates zero, five.

Remember, when determining the quadratic equation, the key is to start with the turning point.