Mathematics

Sketching Quadratics

Mrs Buckmire

Try this

Factorise the following quadratics

$$y = x^2 + 3x + 2 \qquad y = x^2 - 3x + 2 \qquad y = x^2 + x - 3$$

Plot the quadratics for x between -5 and 5.

What do you notice?

Independent task (page 1)

Zaki wants to sketch the graph: $y = x^2 + 5x + 6$
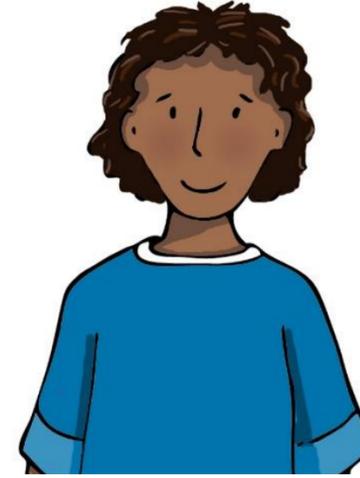
a) Is this a positive or negative quadratic?

b) Find the value of y when x=0

c) Use your answer to (a) to plot where the graph crosses the y axis.

d) Sketch the graph

e) How would the graph be different if instead he had to sketch $y = -x^2 - 5x - 6$?

Have a go at sketching that graph.

Independent task (page 2)

2. Sketch the following graphs on the same axes.

What do you notice?

$$y = x^2 - 1$$

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

$$y = (x + 2)(x - 2)$$
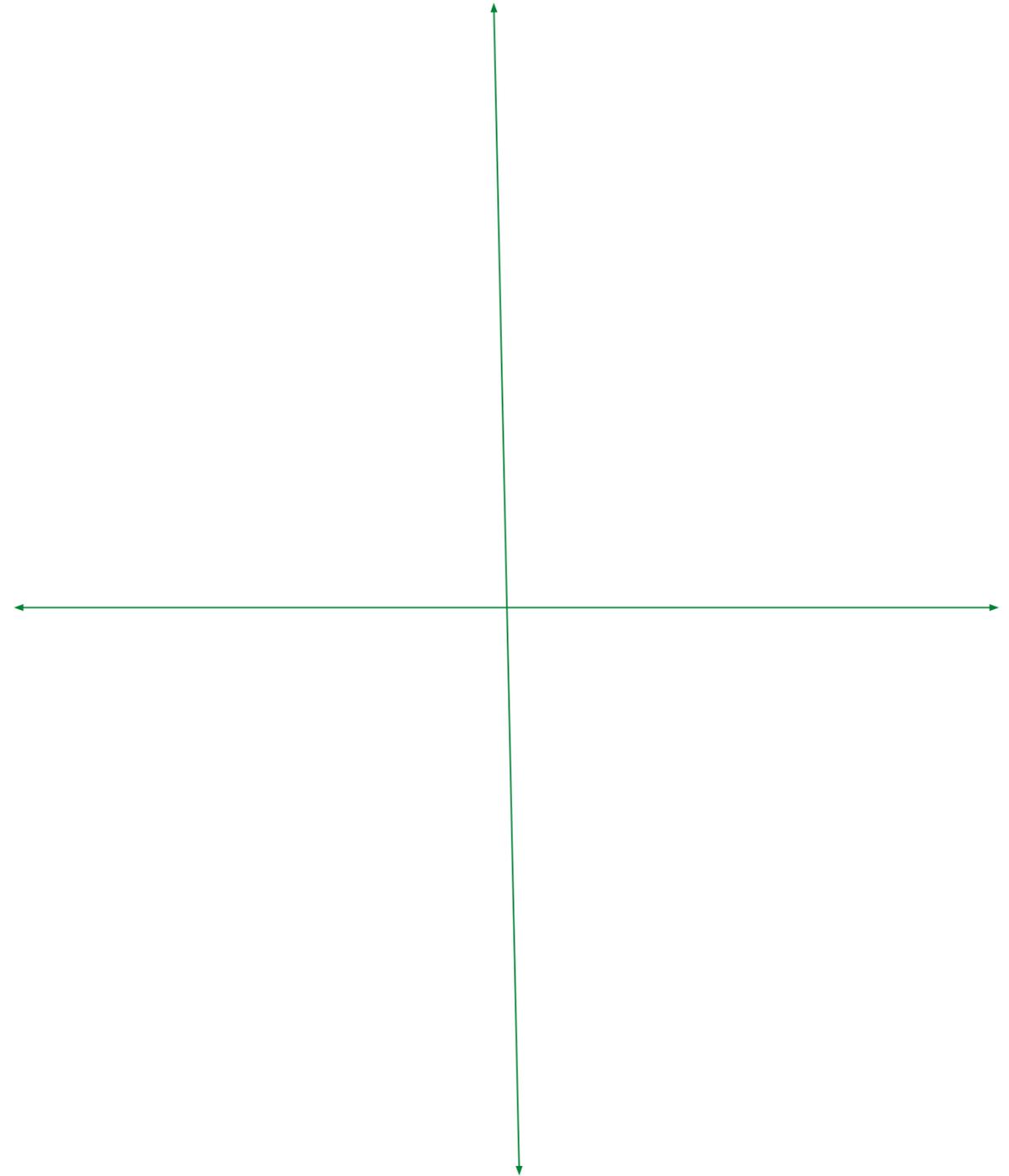
Explore

Decide if the following statements are always, sometimes or never true.

Use specific examples to justify each of your responses.

Quadratic graphs cross the x-axis in two places

Quadratic graphs cross the y-axis

Every quadratic has a minimum point

For all quadratics, as the x value increase the y value also increases