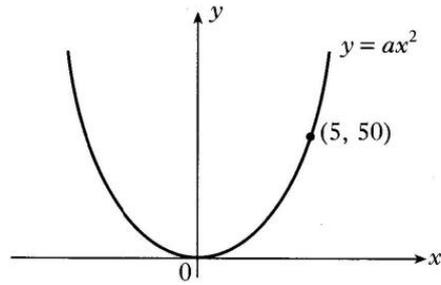


Working with Quadratic Equations and Graphs

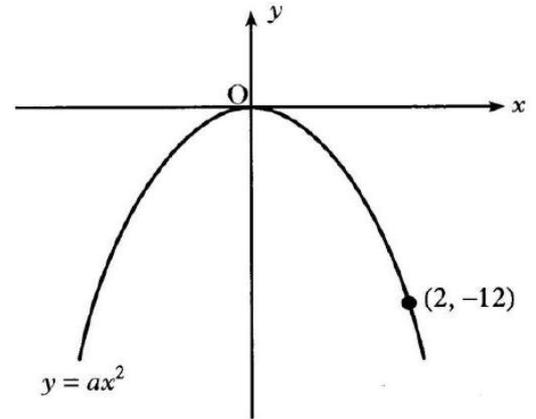
1.

The diagram below shows the graph of $y = ax^2$.



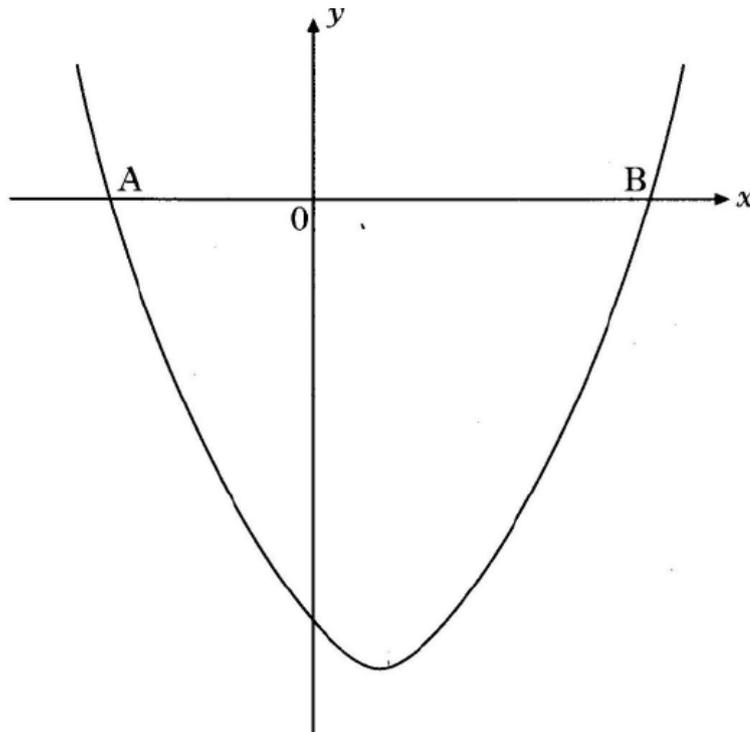
Find the value of a .

2.



Find the value of a .

3.



The equation of the parabola in the above diagram is

$$y = (x - 1)^2 - 16.$$

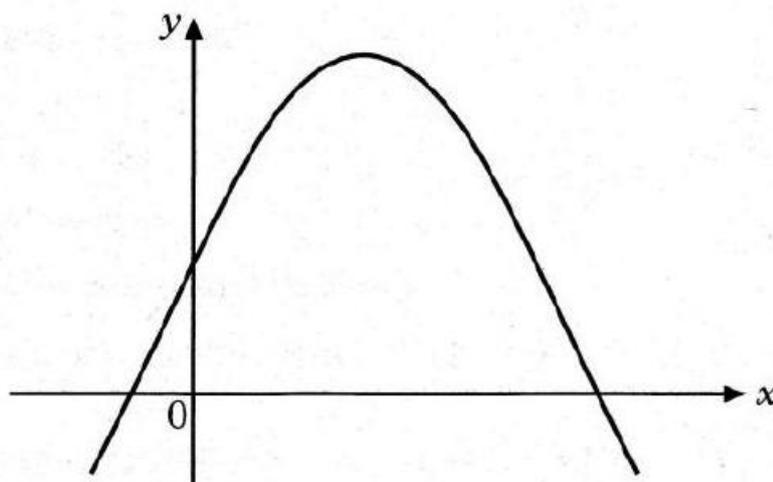
- State the coordinates of the minimum turning point of the parabola.
- State the equation of the axis of symmetry of the parabola.
- The parabola cuts the x -axis at A and B. Find the length of AB.

4.

(a) Factorise $7 + 6x - x^2$.

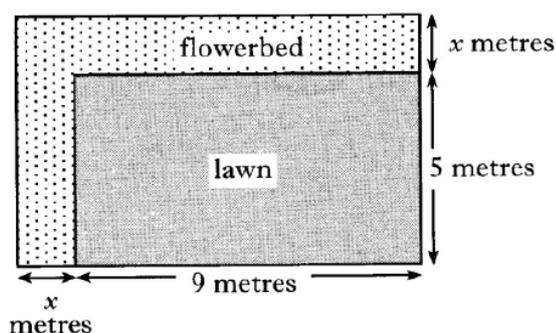
(b) Hence write down the roots of the equation

$$7 + 6x - x^2 = 0.$$

(c) The graph of $y = 7 + 6x - x^2$ is shown in the diagram.

Find the coordinates of the turning point.

5.



The diagram shows a rectangular garden which consists of a rectangular lawn and a flowerbed along two sides of the lawn

- the lawn measures 9 metres by 5 metres
- the width of the flowerbed is x metres.

(a) State the length and breadth of the garden. 1(b) Show that the area, A square metres, of the garden is given by

$$A = x^2 + 14x + 45. \quad 2$$

(c) The area of the garden is 77 square metres. Find the width of the flowerbed.

Show clearly all your working. 3