

6.

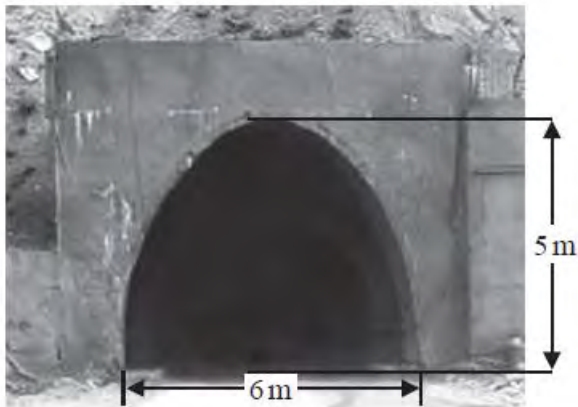


Figure 2

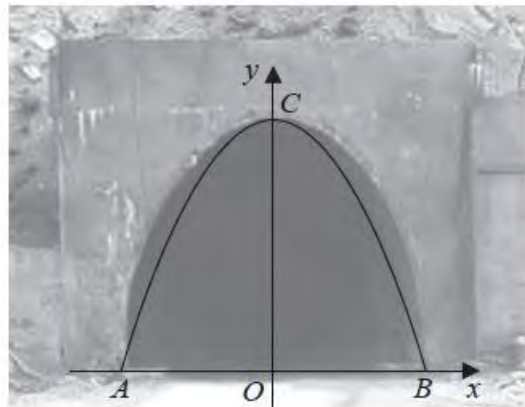


Figure 3

Figure 2 shows the entrance to a road tunnel. The maximum height of the tunnel is measured as 5 metres and the width of the base of the tunnel is measured as 6 metres.

Figure 3 shows a quadratic curve BCA used to model this entrance.

The points A , O , B and C are assumed to lie in the same vertical plane and the ground AOB is assumed to be horizontal.

(a) Find an equation for curve BCA .

(3)

A coach has height 4.1 m and width 2.4 m.

(b) Determine whether or not it is possible for the coach to enter the tunnel.

(2)

(c) Suggest a reason why this model may not be suitable to determine whether or not the coach can pass through the tunnel.

(1)

(Total for Question 6 is 6 marks)