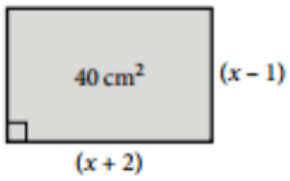
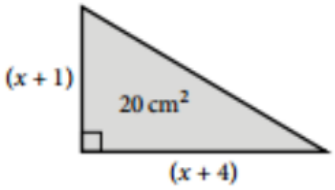
PROBLEMS INVOLVING QUADRATIC FUNCTIONS

1 In each diagram, all measurements are in centimetres and the area of the shaded region is given. Find the value of x in each case.

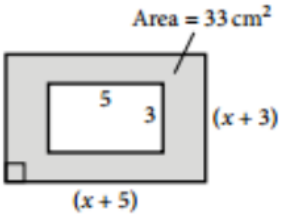
(a)



(b)

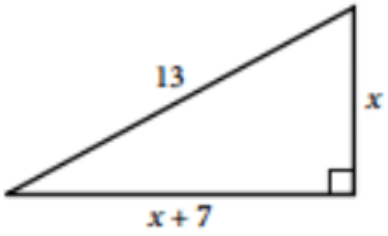


(c)

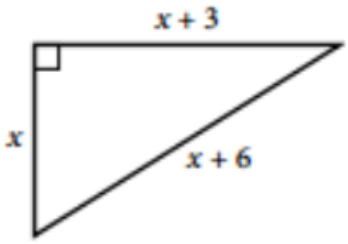


3 Use Pythagoras' theorem to find the value of x, given that all measurements are in centimetres.

(a)



(b)



5 The product of two numbers is 88. If one of the numbers is 3 more than the other, what are the numbers?

7 The height h metres of a stone, t seconds after being thrown straight up, is given by $h = 40t - 5t^2$. At what times is the stone at a height of: **(a)** 60 m **(b)** 80 m?

9 A rectangular swimming pool, 12 m by 8 m, is surrounded by a concrete path of uniform width. If the area of the path alone is 224 m^2, find its width.

13 In a right-angled triangle, one of the sides adjacent to the right angle is 4 cm longer than the other side. If the area of the triangle is 96 cm^2, find the length of each of the three sides.

14 The perimeter of a rectangle is 40 cm and its area is 84 cm^2.

(a) If the breadth of the rectangle is x cm, express the length in terms of x.

(b) Write the area of the rectangle in terms of x.

(c) Form a quadratic equation in x and solve it to find the length and breadth.