

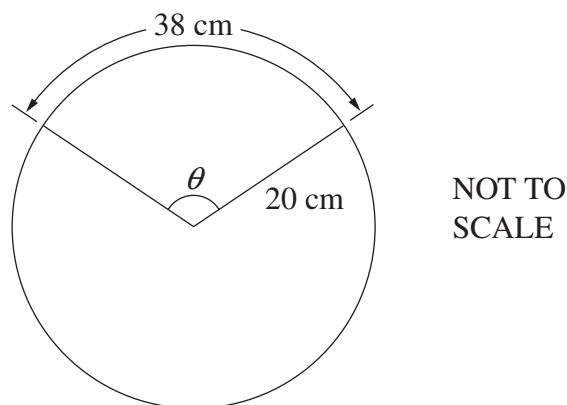
Question 5 (12 marks) Use a SEPARATE writing booklet.

(a) Catrine is exercising her dog by throwing a stick for the dog to fetch and return. The first time, Catrine throws the stick 2 m and she continues to throw the stick after the dog has returned it. Each time, she increases the distance the stick is thrown by exactly 1.5 m. Her last throw is 32 m.

(i) How many times did Catrine throw the stick? 2

(ii) How far did her dog run altogether in fetching and returning the stick? 3
(Assume that the dog starts and finishes at Catrine's side.)

(b) 3



The length of the arc between two spokes on a car's steering wheel is 38 cm. Each spoke is 20 cm in length.

Calculate the angle θ between the two spokes. Give your answer correct to the nearest degree.

(c) Consider the parabola $y = x^2 - 8x + 4$. Find:

(i) the coordinates of the vertex, 2

(ii) the coordinates of the focus. 2