5. A statue stands at the corner of a square courtyard.



 The statue is 4.6 metres high.

 The angle of elevation from the opposite corner of the courtyard to the top

 of the statue is 8°.

1. Find the distance from the base of the statue to the opposite corner of the courtyard.

2 marks

1. Find the length of the side of the courtyard to the nearest whole number.

2 marks



6. The diagram shows the design of an earring.

 The earring consists of a circle

 inside an equilateral triangle.

 The sides of the triangle are tangents to the circle.

 The radius of the circle is 8 mm

 The distance from the centre of the circle

 to **each** vertex of the triangle is 17mm.

 Calculate the perimeter of the triangle. 4 marks

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7. The Scott family want to build a

 conservatory as shown in the diagram.

 The conservatory is to be 3 metres wide.

 The height of the conservatory at the lower end is to be

 2 metres and at the higher end 3.5 metres.

 To obtain planning permission, the roof

 must slope at an angle of (25 ± 2) degrees to the horizontal.

 Should planning permission be granted.

 **Justify your answer.** 4 marks

8. The diagram shows the design

 of a swimming pool 50 metres in length.

 The pool is 1 metre deep at one end

 and its base slopes downwards

 at an angle of 3° to the horizontal.

 Calculate the depth, *d* metres, of

 the other end of the pool, giving

 your answer to 2 significant figures.

 **Do not use a scale drawing.** 5 marks