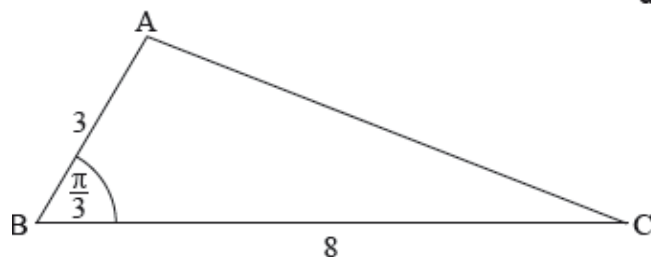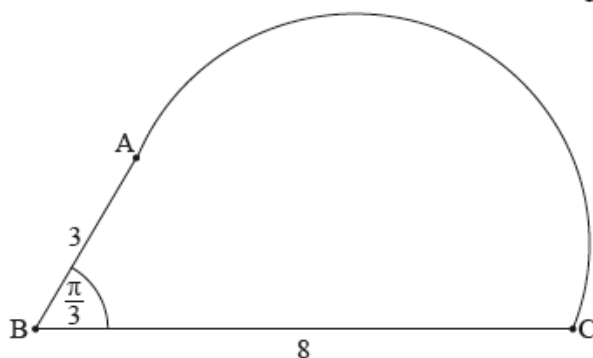Review: Trig functions

1a. The following diagram shows triangle ABC, with $AB = 3$ cm, $BC = 8$ cm, and $A\hat{B}C = \frac{\pi}{3}$.

diagram not to scale

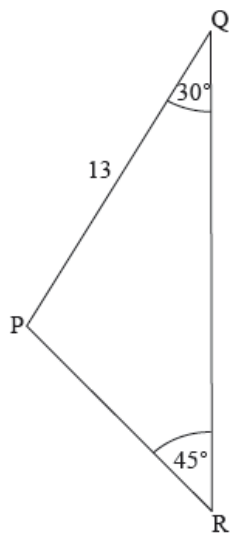Show that $AC = 7$ cm.   *[4 marks]*

1b. The shape in the following diagram is formed by adding a semicircle with diameter [AC] to the triangle.

diagram not to scale

Find the exact perimeter of this shape.   *[3 marks]*

2. The following diagram shows triangle PQR.

diagram not to scale

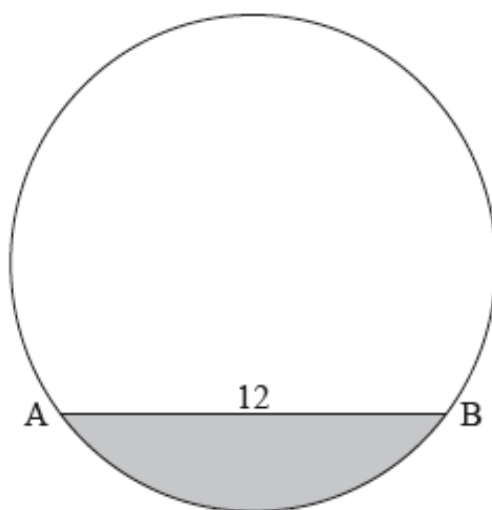$P\hat{Q}R = 30°$, $Q\hat{R}P = 45°$ and $PQ = 13$ cm.

Find PR.   *[6 marks]*

3. *[7 marks]*

The following diagram shows the chord [AB] in a circle of radius 8 cm, where $AB = 12 \text{ cm}$.
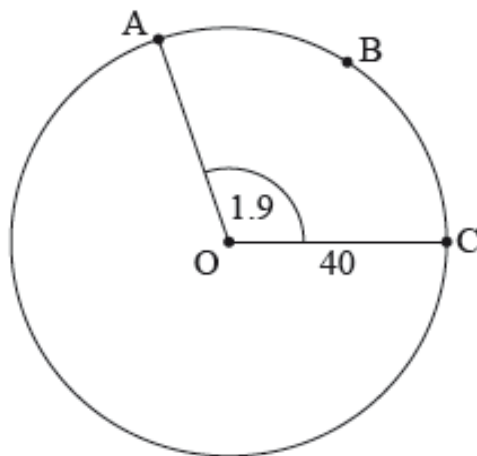
diagram not to scale

Find the area of the shaded segment.

4a. *[2 marks]*

The following diagram shows a circle with centre O and radius 40 cm.

diagram not to scale

The points A, B and C are on the circumference of the circle and $A\hat{O}C = 1.9 \text{ radians}$.

Find the length of arc ABC.

4b. Find the perimeter of sector OABC.   *[2 marks]*

4c. Find the area of sector OABC.   *[2 marks]*