Full marks are not necessarily awarded for a correct answer with no working. Answers must be supported by working and/or explanations. In particular, solutions found from a graphic display calculator should be supported by suitable working, for example if graphs are used to find a solution, you should sketch these as part of your answer. Where an answer is incorrect, some marks may be given for a correct method, provided this is shown by written working. You are therefore advised to show all working.

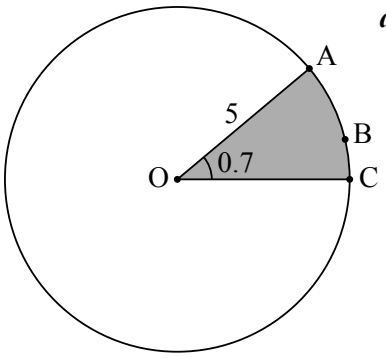
SECTION A

*Answer **all** questions in the boxes provided. Working may be continued below the lines if necessary.*

1. *[Maximum mark: 6]*

The following diagram shows a circle with centre O and radius 5 cm.

diagram not to scale



The points A, B and C lie on the circumference of the circle, and $A\hat{O}C = 0.7$ radians.

(a) (i) Find the length of the arc ABC.

(ii) Find the perimeter of the shaded sector. *[4]*

(b) Find the area of the shaded sector. *[2]*

Answer below:

5. *[Maximum mark: 7]*

In triangle ABC, $AB = 6\,\text{cm}$ and $AC = 8\,\text{cm}$. The area of the triangle is $16\,\text{cm}^2$.

(a) Find the two possible values for $\hat{A}$. *[4]*

(b) Given that $\hat{A}$ is obtuse, find BC. *[3]*

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5. [Maximum mark: 7]

Given that $\sin x = \frac{3}{4}$, where x is an obtuse angle, find the value of

(a) $\cos x$; [4]

(b) $\cos 2x$. [3]

No Calculator
(Use the formula sheet)

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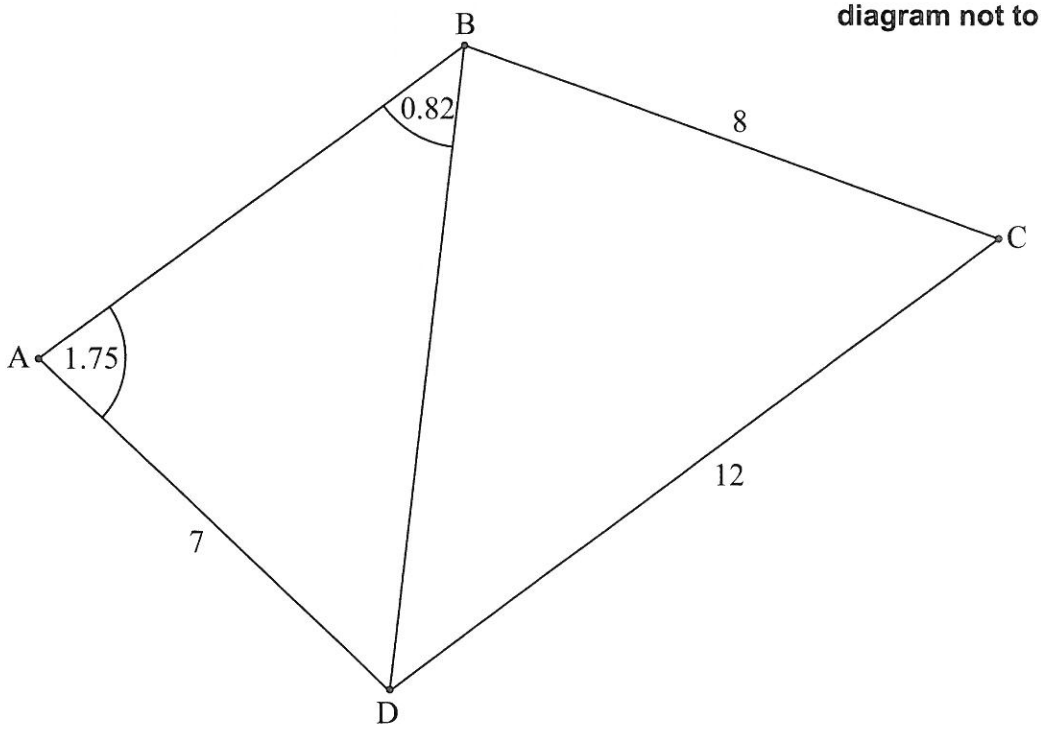
2. [Maximum mark: 6]

The following diagram shows a quadrilateral ABCD.



$AD = 7\,\text{cm}$, $BC = 8\,\text{cm}$, $CD = 12\,\text{cm}$, $D\hat{A}B = 1.75$ radians, $A\hat{B}D = 0.82$ radians.

(a) Find BD. [3]

(b) Find $D\hat{B}C$. [3]

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