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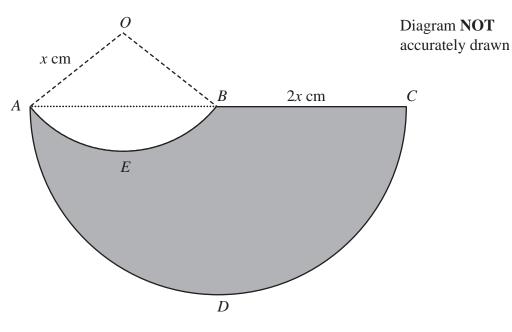


Figure 2

A logo, AEBCD, is shown shaded in Figure 2.

The straight line *ABC* is the diameter of the semicircle *ADC AEB* is an arc of a circle with centre *O* All angles are measured in radians.

- BC = 2x cm
- OA = OB = x cm
- length of arc AEB = 1.8x cm

The perimeter of the logo is P

(a) Show that $P = ax(\pi + \pi \sin 0.9 + b)$ where a and b are constants to be found.

(7)

Given that x = 10 cm,

(b) find, in cm² to 3 significant figures, the area of the logo.

(6)

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| (Total for Question 9 is 13 marks) |
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