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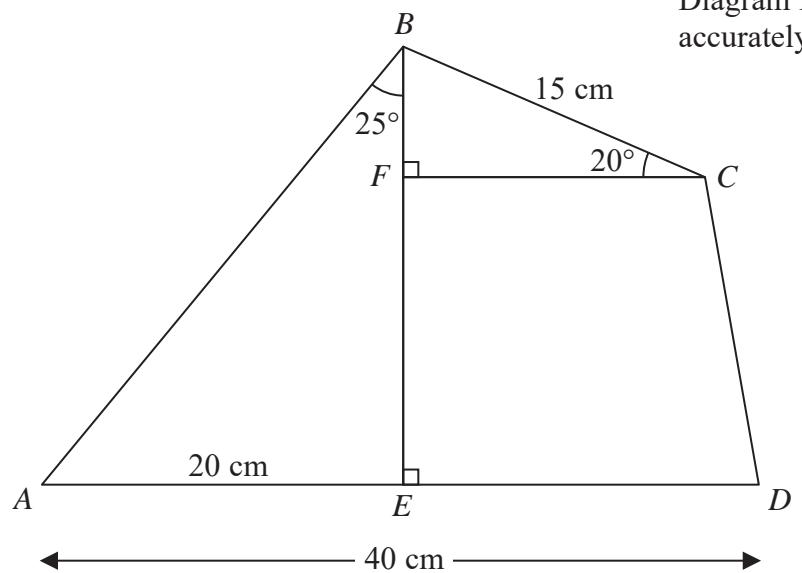


Figure 2

Figure 2 shows quadrilateral  $ABCD$  in which  $BC = 15 \text{ cm}$  and  $AD = 40 \text{ cm}$ .

The point  $E$  on  $AD$  is such that  $BE$  is perpendicular to  $AD$  with  $AE = 20 \text{ cm}$  and  $\angle ABE = 25^\circ$

(a) Calculate the length, in cm to 3 significant figures, of  $AB$ . (2)

The point  $F$  on  $BE$  is such that  $FC$  is perpendicular to  $BE$  with  $\angle BCF = 20^\circ$

Calculate the length, in cm to 3 significant figures, of

(b)  $FC$ , (2)

(c)  $AC$ . (3)

(d) Calculate the area, in  $\text{cm}^2$  to 3 significant figures, of quadrilateral  $ABCD$ . (6)

$$\boxed{\begin{aligned} &\text{Cosine rule: } a^2 = b^2 + c^2 - 2bc \cos A \\ &\text{Area of triangle} = \frac{1}{2} bc \sin A \\ &\text{Area of trapezium} = \frac{1}{2} (a+b)h \\ &\text{Sine rule: } \frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C} \end{aligned}}$$



**Question 10 continued**

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**(Total for Question 10 is 13 marks)**

