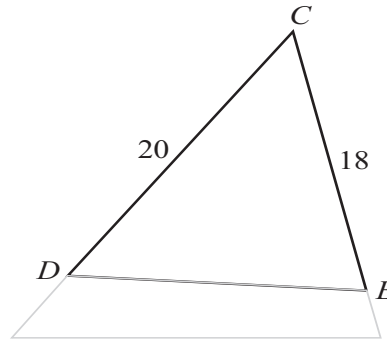
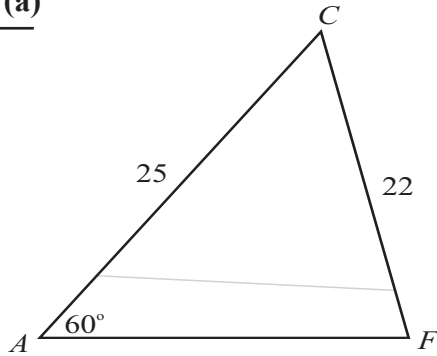


SAMPLE PAPER 2014 (SET F): PAPER 2

QUESTION 8 (50 MARKS)

QUESTION 8 (a)



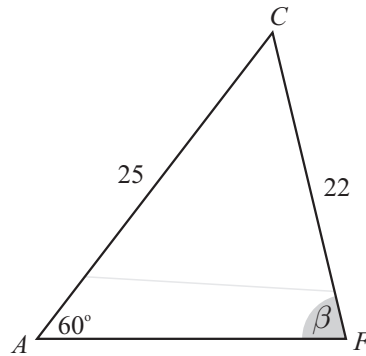
Call β the measure of $|\angle CFA|$. Use the Sine Rule to find this angle.

$$\boxed{\frac{\sin A}{a} = \frac{\sin B}{b}} \quad [\text{Use the Sine Rule anytime you are given 2 sides and a non-included angle.}]$$

$$\frac{\sin \beta}{25} = \frac{\sin 60^\circ}{22}$$

$$\therefore \sin \beta = \frac{25 \sin 60^\circ}{22}$$

$$\beta = \sin^{-1}\left(\frac{25 \sin 60^\circ}{22}\right) = 79.8^\circ$$

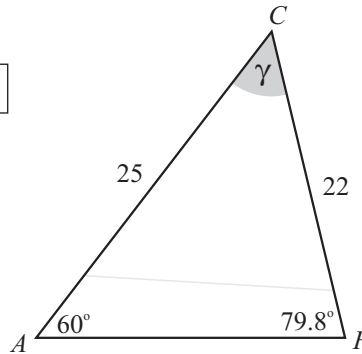


Call γ , the measure of $|\angle ACF|$.

$$\boxed{\text{The 3 angles of a triangle add up to } 180^\circ.}$$

$$\gamma + 60^\circ + 79.78^\circ = 180^\circ$$

$$\gamma = 180^\circ - 60^\circ - 79.8^\circ = 40.2^\circ$$

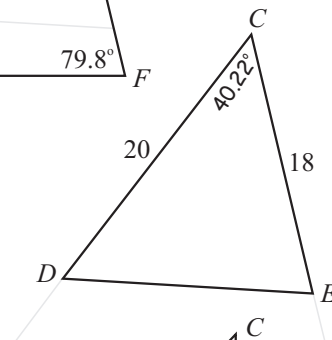


Use the Cosine Rule to find $|DE|$.

$$\boxed{a^2 = b^2 + c^2 - 2bc \cos A} \quad [\text{Use the Cosine Rule anytime you are given 2 sides and an included angle.}]$$

$$|DE|^2 = 20^2 + 18^2 - 2(20)(18) \cos 40.2^\circ$$

$$|DE| = \sqrt{20^2 + 18^2 - 2(20)(18) \cos 40.2^\circ} = 13.2 \text{ cm}$$



QUESTION 8 (b)

$$\sin \alpha = \frac{22}{25} \Rightarrow \alpha = \sin^{-1}\left(\frac{22}{25}\right) = 62^\circ$$

The maximum of the angle β is 90° . If it goes beyond 90° the solar panel will topple over.

