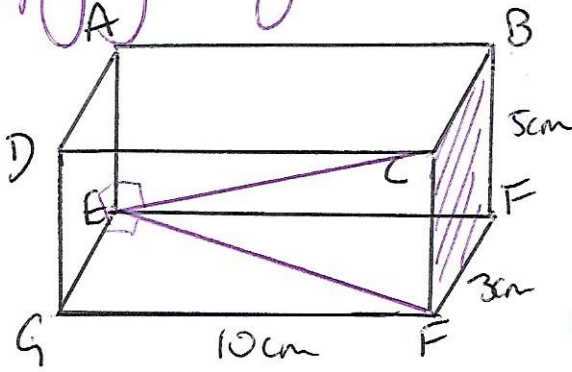


3D TRIGONOMETRY

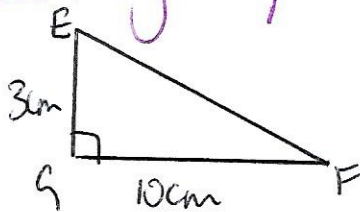
Applying trig ratios and pythagoras theorem to 3D shapes



Look carefully and see all the right angles
When asked to find lengths & angles look for the relevant right angled triangles

TO FIND LENGTH EG

draw triangle EGF



Using pythagoras

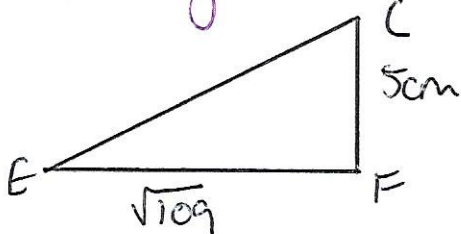
$$EF^2 = 3^2 + 10^2$$

$$EF = \sqrt{109}$$

$$EF = 10.4 \text{ cm (3sf)}$$

TO FIND LENGTH CE

draw triangle CEF



Using pythagoras

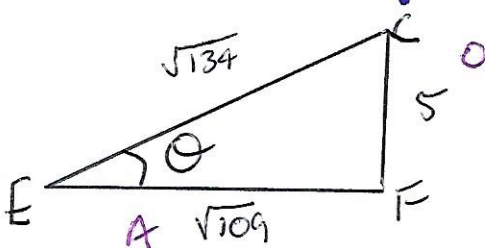
$$CE^2 = (\sqrt{109})^2 + 5^2$$

$$= 109 + 25$$

$$CE = \sqrt{134}$$

$$CE = 11.6 \text{ cm (3sf)}$$

TO FIND ANGLE CEG



Using trig T A

$$\tan \theta = \frac{5}{\sqrt{109}}$$

$$\theta = \tan^{-1}\left(\frac{5}{\sqrt{109}}\right) = 25.6^\circ$$

* Remember redraw triangles to make 2D out of 3D

* get your side lengths correct

* Try to use original values rather than rounding too soon