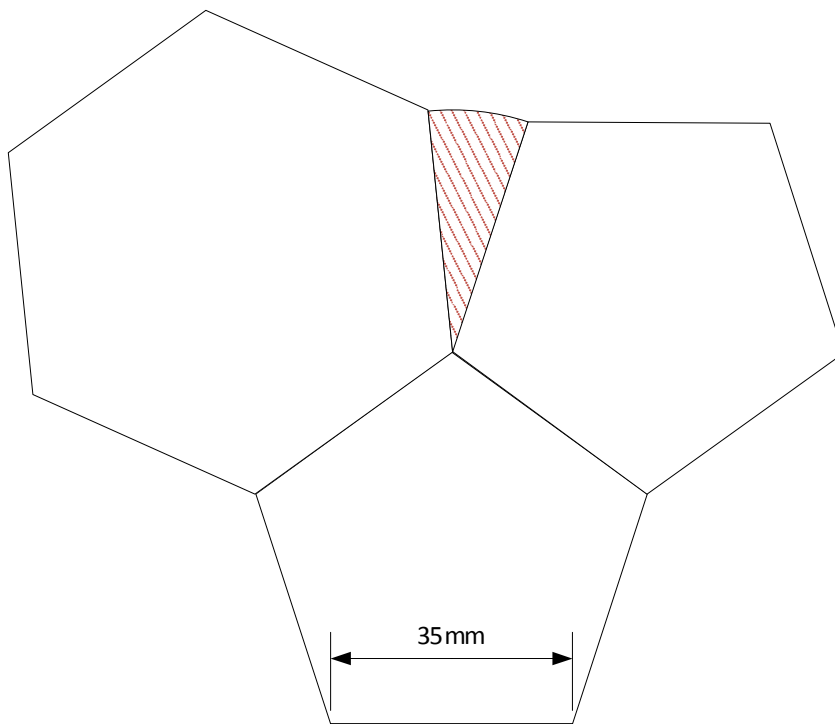


**Q1.** The polygons shown are regular shapes.

Calculate the area of the shaded sector. You **MUST** show each step of your calculation explaining your reasoning clearly.



DO NOT SCALE

**Q2.**

Remember to give **valid reasons** for each stage in your calculations.

Line AE is parallel to Line GK.

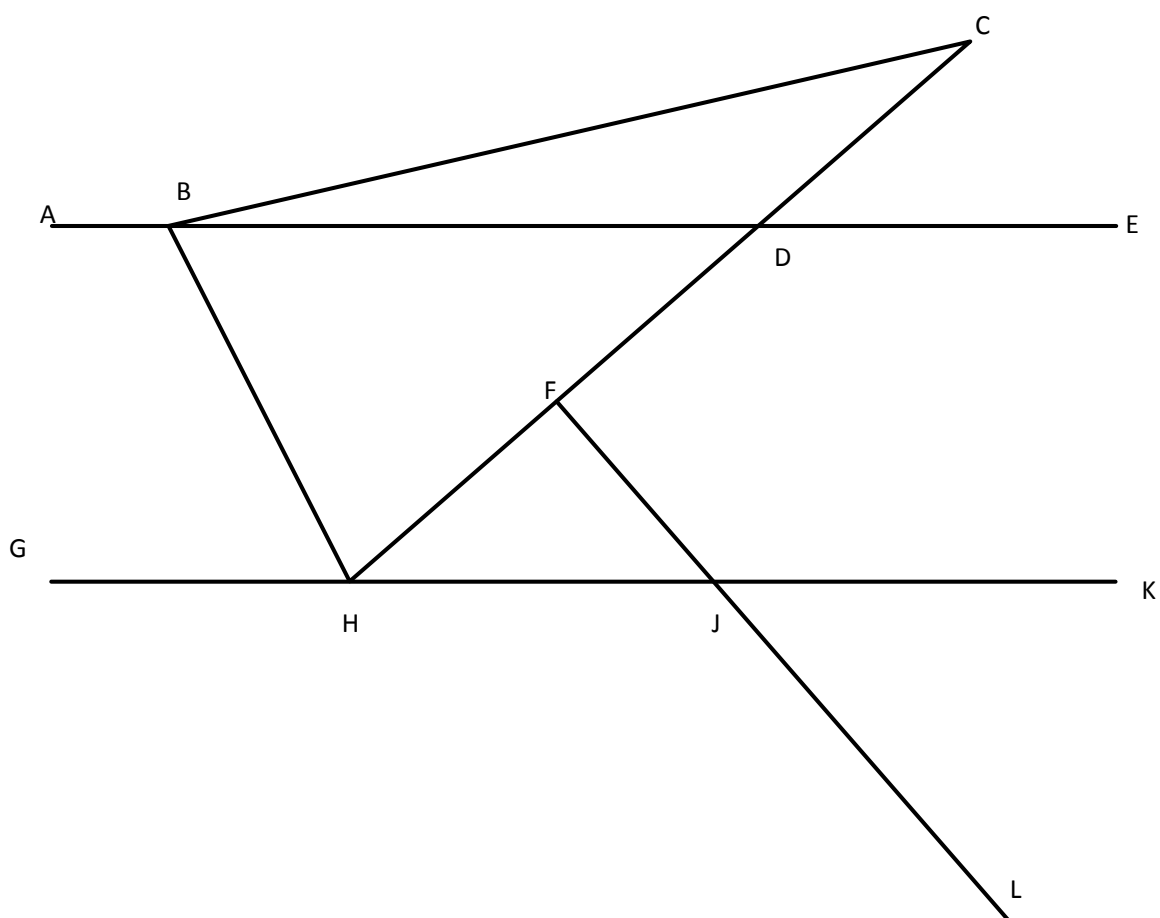
BCH is an isosceles triangle.

Angle ABC is  $157^\circ$ .

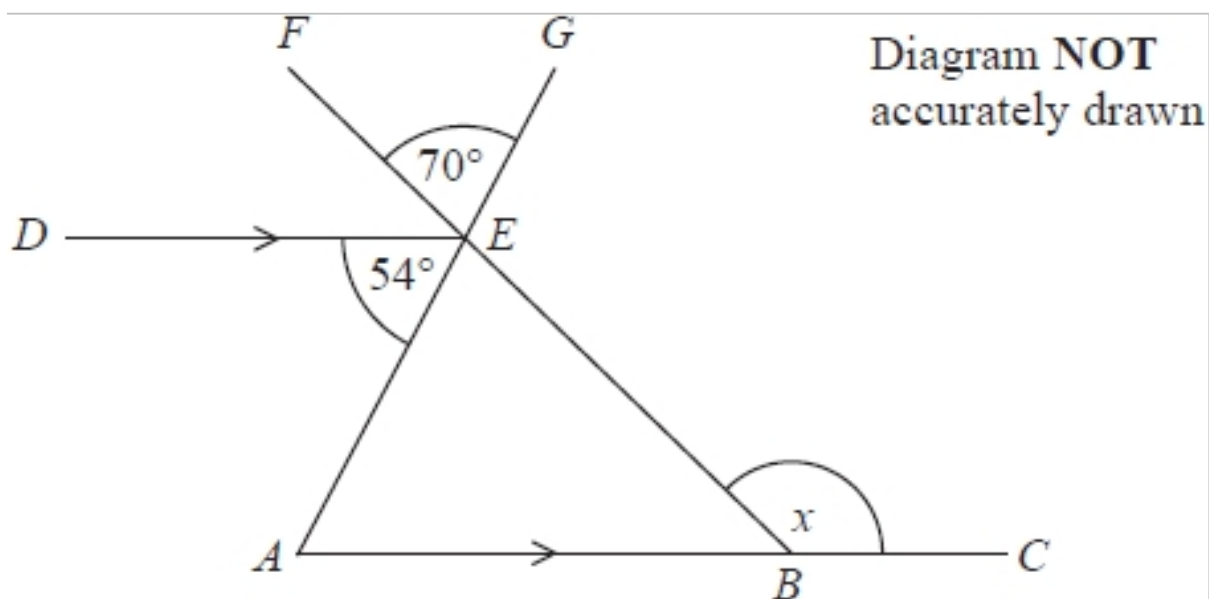
BCD is an angle of  $32^\circ$ .

Angle GJL is  $145^\circ$ .

Show that angle DFJ is a right angle.



Q3.



$ABC$  and  $DE$  are parallel lines.  
 $AEG$  and  $BEF$  are straight lines.

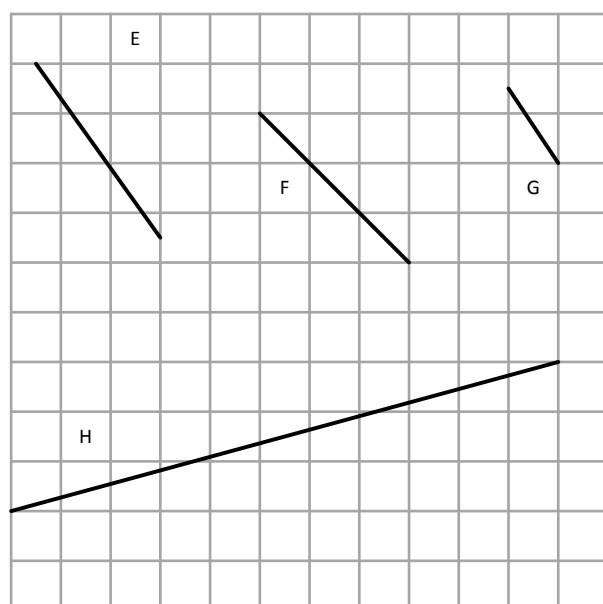
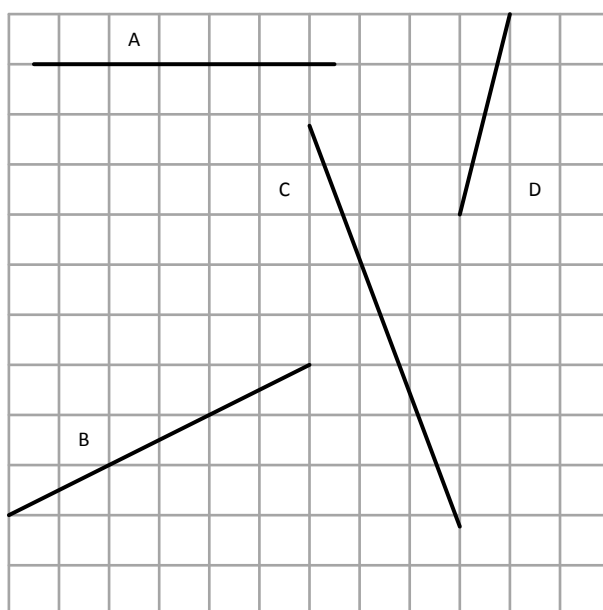
Angle  $AED = 54^\circ$

Angle  $FEG = 70^\circ$

Work out the size of the angle marked  $x$ .

Give a reason for each stage of your working.

Q4 Find the gradient of the following lines.



A

B

C

D

E

F

G

H