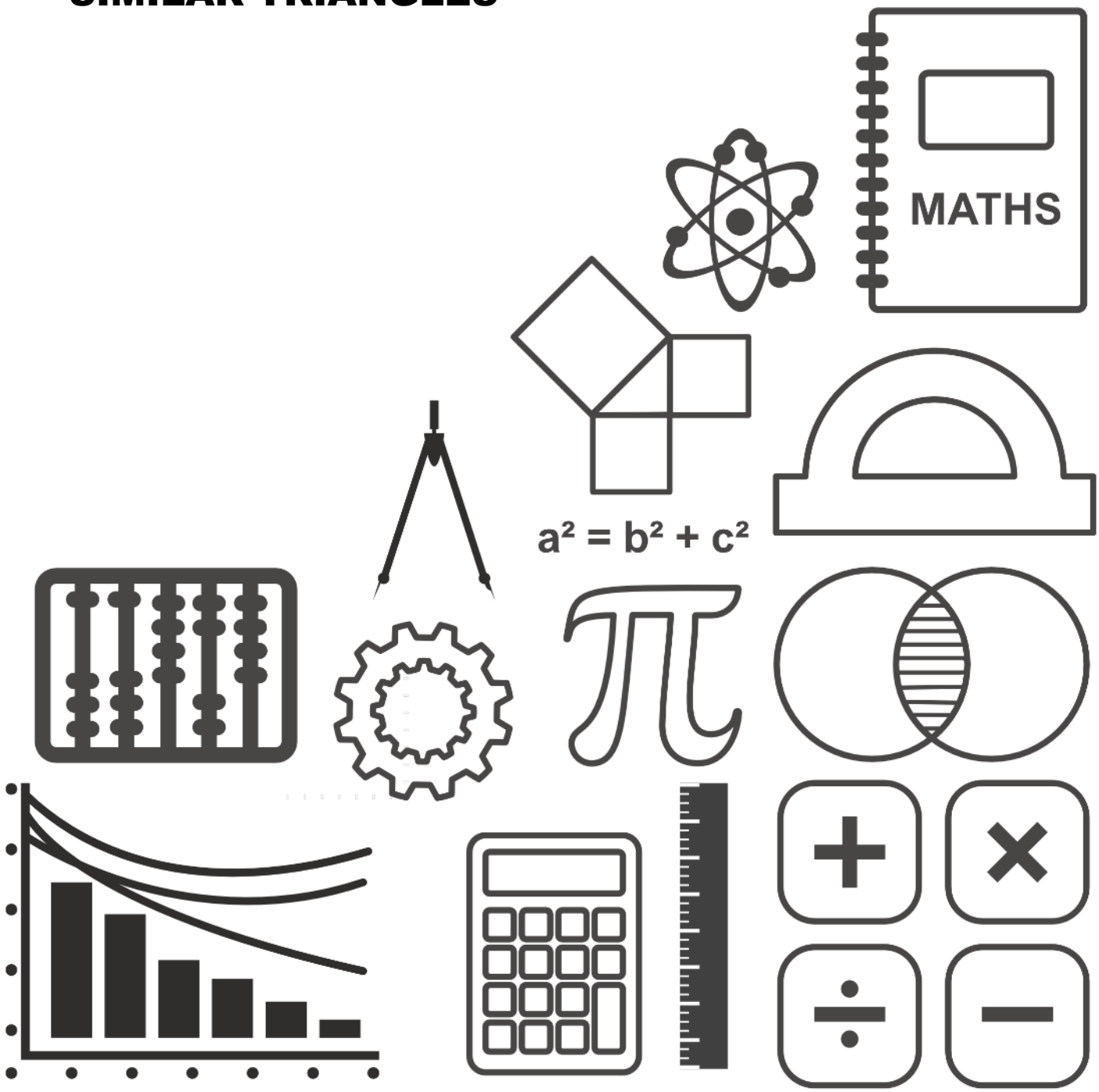
MATHSDIY

GCSE TOPIC BOOKLET
SIMILAR TRIANGLES



1. The diagram shows two similar triangles, ABC and PQR.

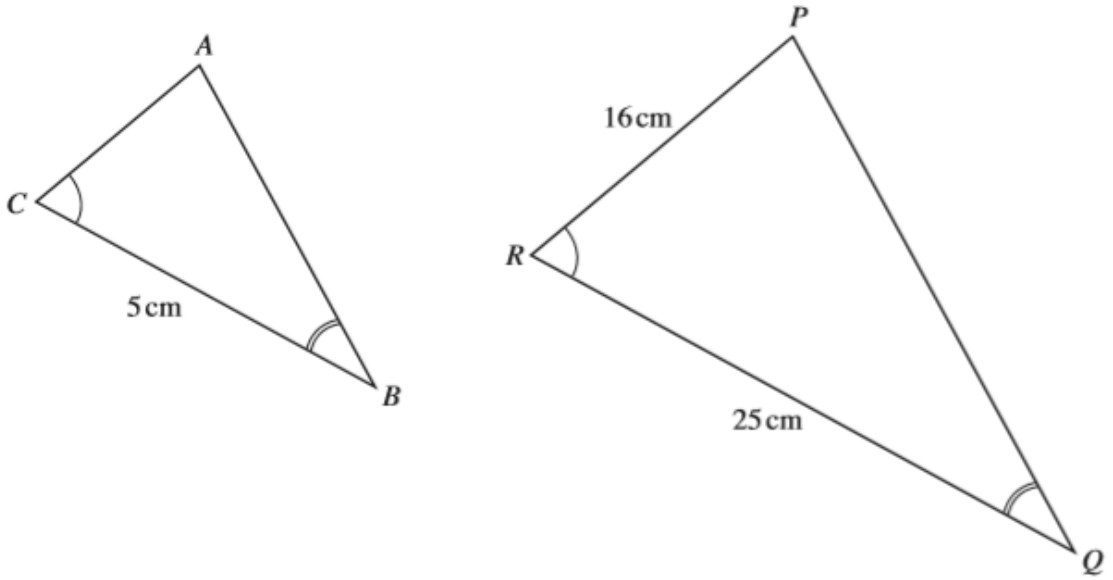


Diagram not drawn to scale.

Given that $CB = 5\,\text{cm}$, $RQ = 25\,\text{cm}$ and $PR = 16\,\text{cm}$, find the length of AC.

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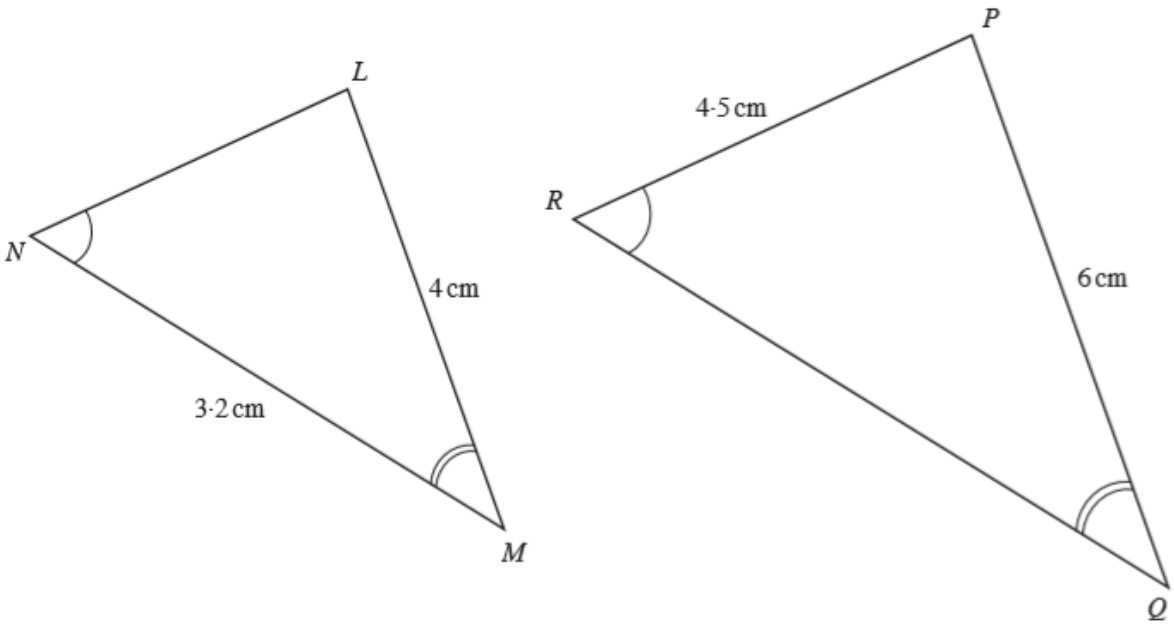
[2]

2. Triangles LMN and PQR are similar, with $\widehat{LMN} = \widehat{PQR}$, $\widehat{MNL} = \widehat{QRP}$, $LM = 4$ cm, $MN = 3{\cdot}2$ cm, $PR = 4{\cdot}5$ cm and $PQ = 6$ cm.



Diagrams not drawn to scale.

Showing all your working, find the length of

(a) RQ.

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[2]

(b) LN.

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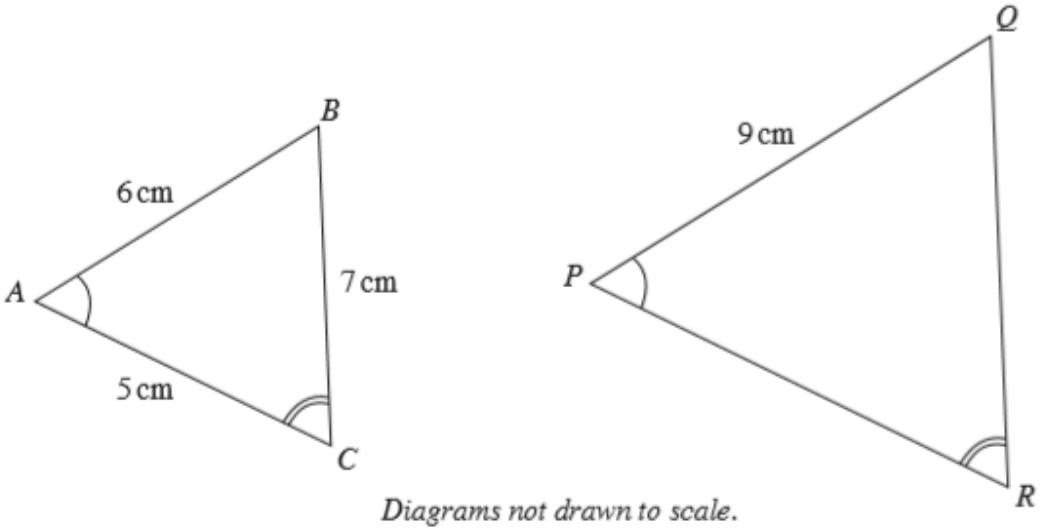
[2]

3. Triangles ABC and PQR are similar, with $\hat{BAC} = \hat{QPR}$, $\hat{BCA} = \hat{QRP}$, $AB = 6$ cm, $BC = 7$ cm, $AC = 5$ cm and $PQ = 9$ cm.



Diagrams not drawn to scale.

Showing all your working, find the length of QR.

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[2]

4. In the diagram, AB is parallel to DE.

(a) Show that triangles ABC and EDC are similar.

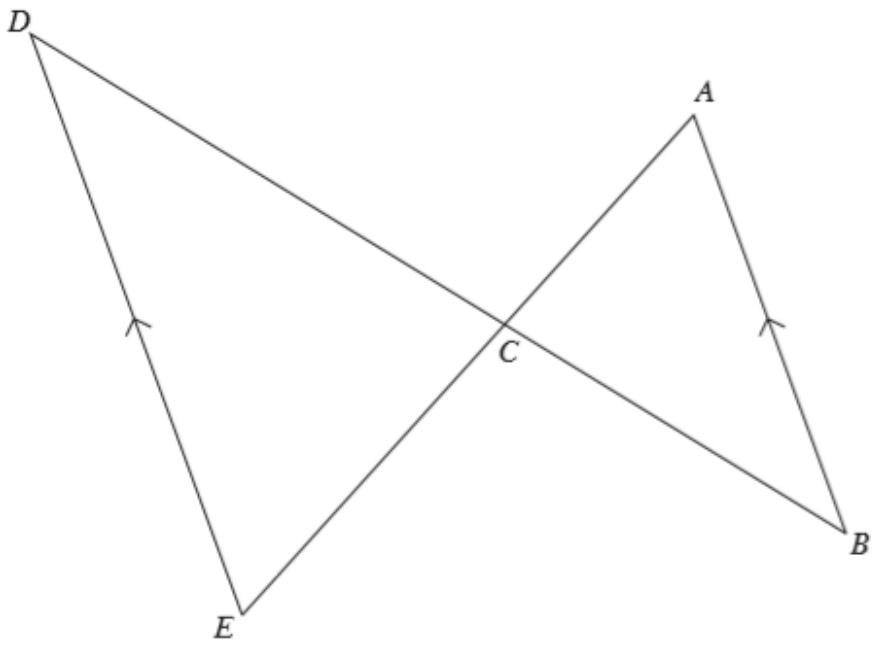


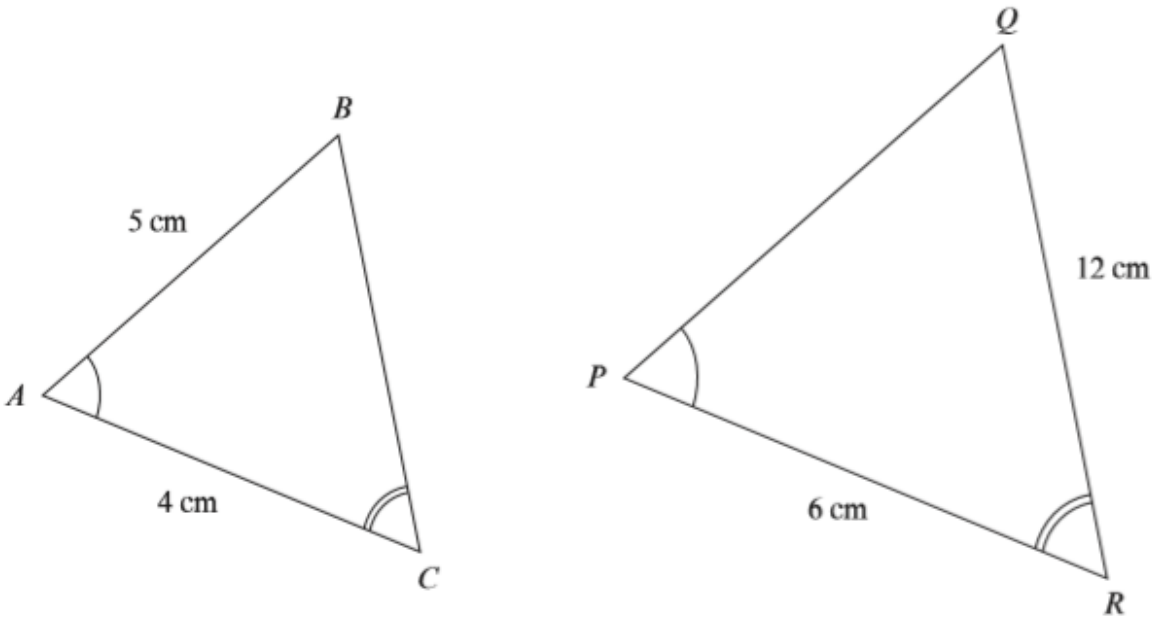
Diagram not drawn to scale.

[2]

(b) The lengths $AB = 8\,\text{cm}$, $BC = 10\,\text{cm}$ and $DC = 15\,\text{cm}$.
Calculate the length of DE.

[2]

5. Triangles ABC and PQR are similar, with $B\hat{A}C = Q\hat{P}R$, $B\hat{C}A = Q\hat{R}P$, $AB = 5$ cm, $AC = 4$ cm, $PR = 6$ cm and $RQ = 12$ cm.



Diagrams not drawn to scale.

Showing all your working, find

(a) the length of QP,

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[2]

(b) the length of BC.

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[1]

6. The diagram shows two similar triangles.

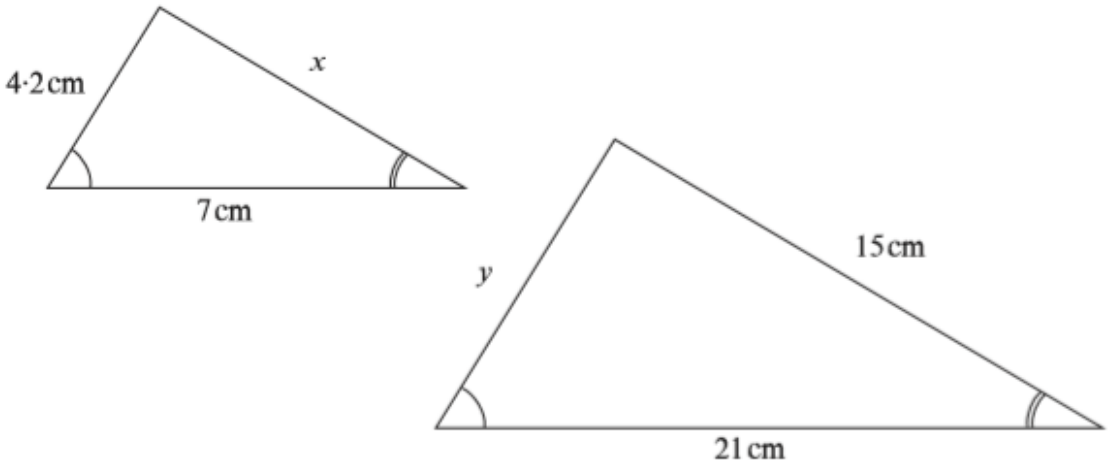


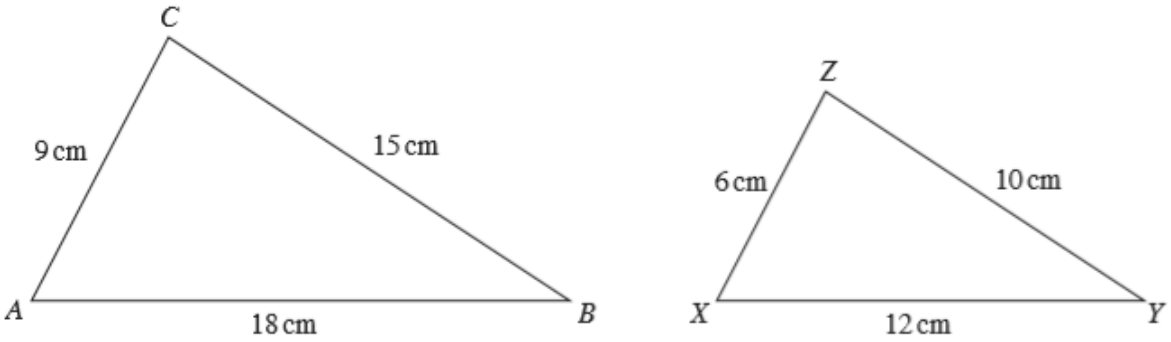
Diagram not drawn to scale

Calculate the lengths of the sides marked x and y.

$x =$ ..... cm $y =$ ..... cm

[4]

7. *(a)* Explain clearly why triangles *ABC* and *XYZ* are similar.



Diagrams not drawn to scale.

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[2]

(b) Triangle *PQR*, in which *PQ* = 15 cm, is similar to both triangles *ABC* and *XYZ*. Calculate the length of *QR*.

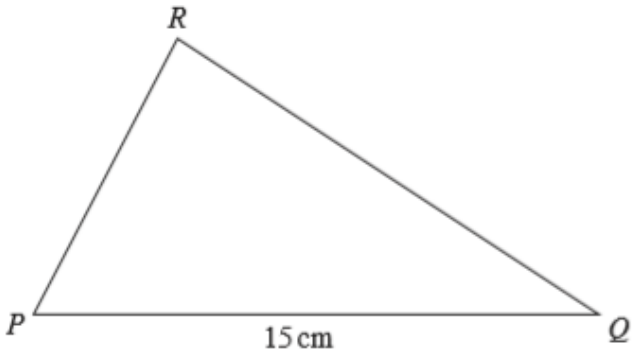

Diagram not drawn to scale.

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8. Triangles *ABC* and *EFG* are similar.
Their corresponding sides are in the ratio 2:3.
Calculate the length of *EF*.

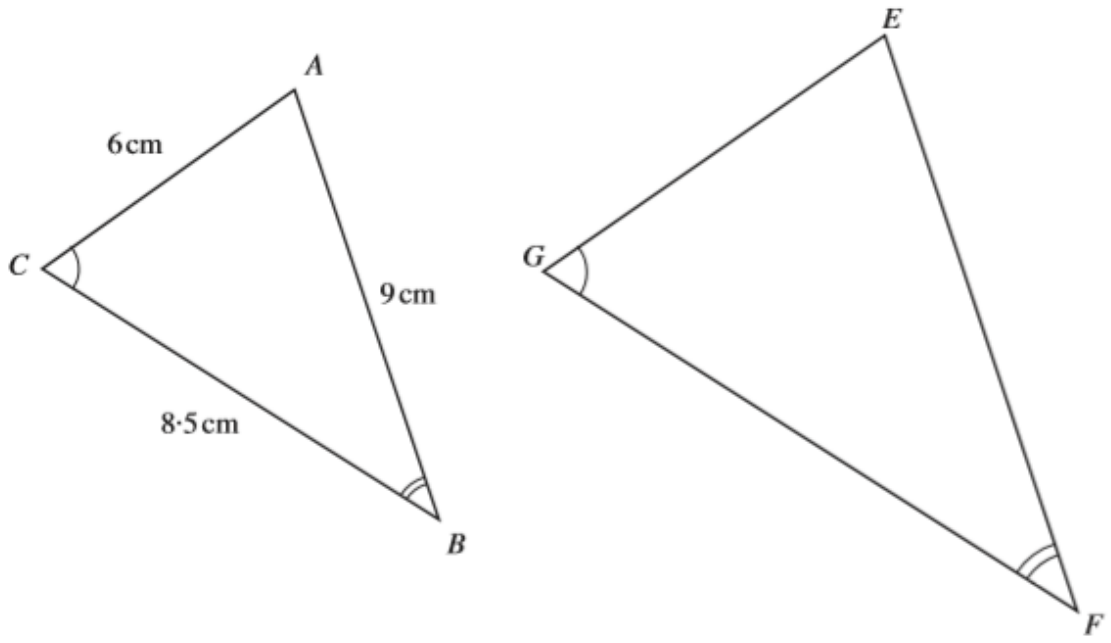

Diagram not drawn to scale.

[2]