

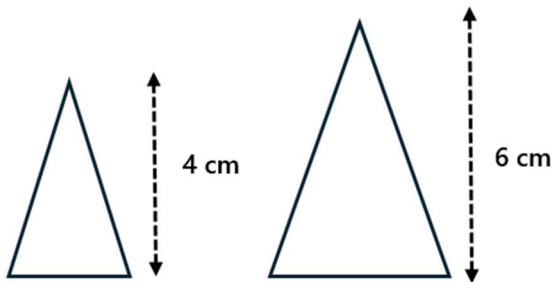
SIMILAR SHAPES

Note that, for each of the following questions the diagrams are not accurately drawn.

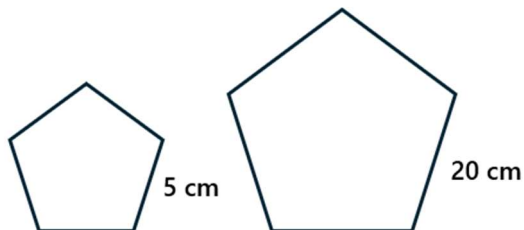
- 1) The rhombuses shown below are mathematically similar. State the scale factor.



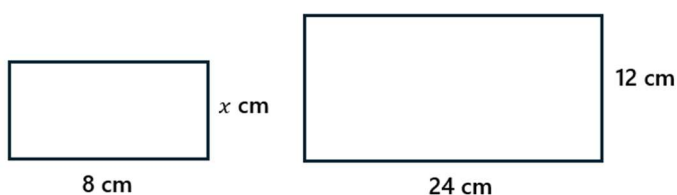
- 2) The triangles shown below are mathematically similar. State the scale factor.



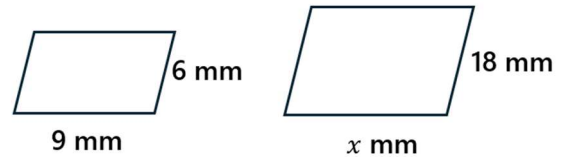
- 3) Two regular pentagons are shown below. State the scale factor.



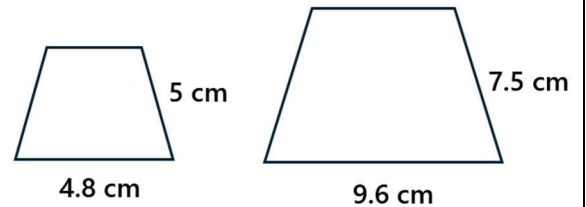
- 4) The rectangles shown below are mathematically similar. Work out the value of x .



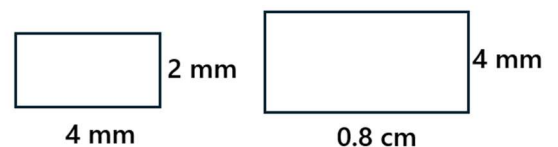
- 5) The parallelograms shown below are mathematically similar. Work out the value of x .



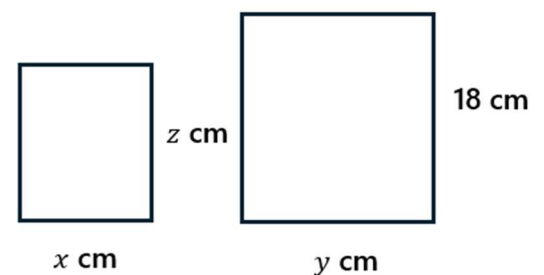
- 6) Two trapeziums are shown below. Determine if the shapes are mathematically similar. You must demonstrate all your working.



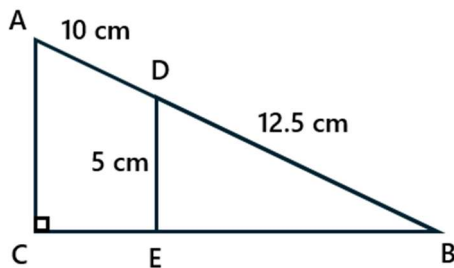
- 7) Two rectangles are shown below. Determine if the shapes are mathematically similar. You must demonstrate all your working.



- 8) Two rectangles are shown below. Given that the rectangles are mathematically similar and the ratio $x : y = 1 : 3$, work out the value of z .

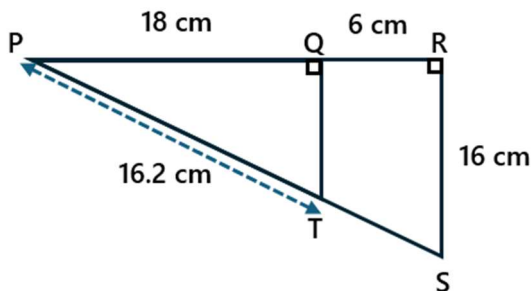


- 9) AC is parallel to DE. ADB and CEB are straight lines.
 AD = 10 cm
 DB = 12.5 cm
 DE = 5 cm



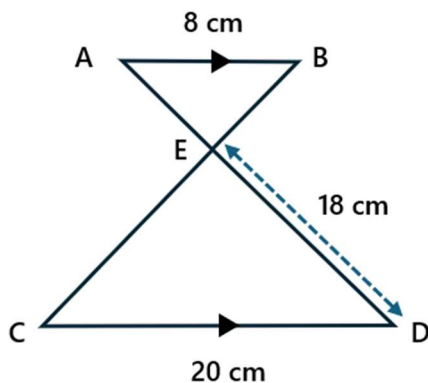
Work out the length of AC.

- 10) QT is parallel to RS. PQR and PTS are straight lines.
 PQ = 18 cm
 QR = 6 cm
 PT = 16.2 cm
 RS = 16 cm



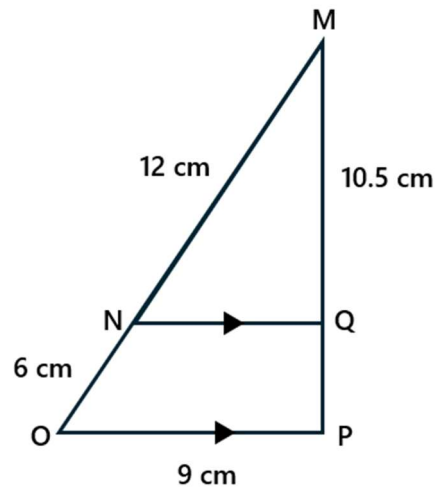
- Work out the length of QT.
- Work out the length of TS.

- 11) AB is parallel to CD.
 AD and BC bisect at E.
 AB = 8 cm
 CD = 20 cm
 ED = 18 cm



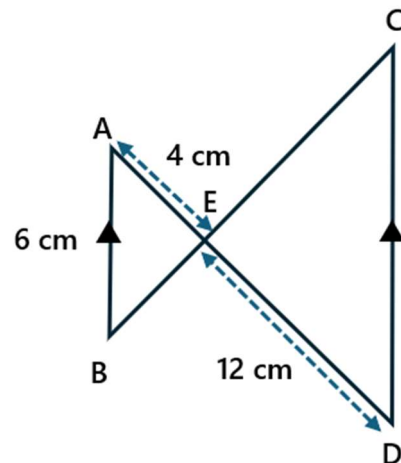
Work out the length of AE.

- 12) NQ is parallel to OP. MNO and MQP are straight lines.
 MN = 12 cm
 NO = 6 cm
 MQ = 10.5 cm
 OP = 9 cm



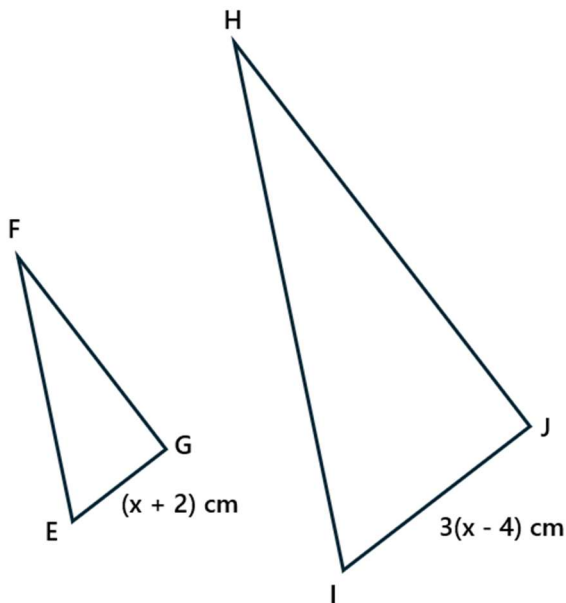
- Work out the length of MP.
- Work out the length of NQ.

- 13) AB is parallel to CD.
 AD and BC bisect at E.
 AB = 6 cm
 AE = 4 cm
 ED = 12 cm

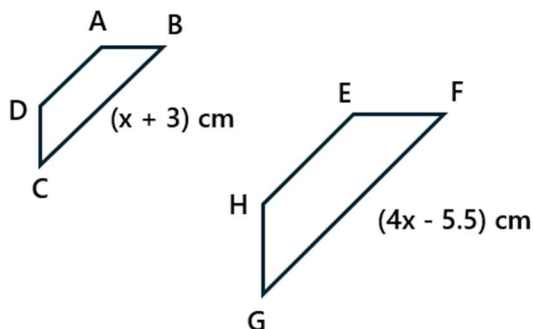


- Work out the length of CD.
- Given that the sum of the lengths of BE and CE is 12 cm, work out the length of BE.

- 14) The triangles FEG and HIJ are mathematically similar.
Given that $FG : HJ = 1 : 2$, work out the value of x .

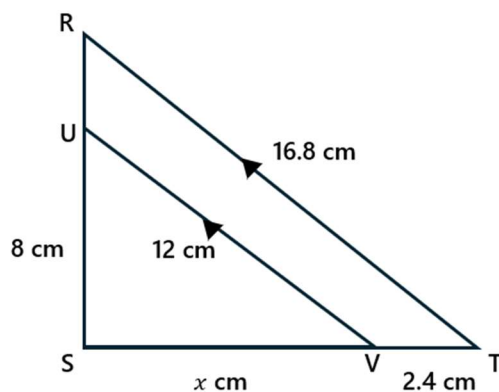


- 15) The trapeziums ABCD and EFGH are mathematically similar.
Given that $AB : EF = 2 : 3$, work out the value of x .



- 16) The lines RT and UV are parallel.

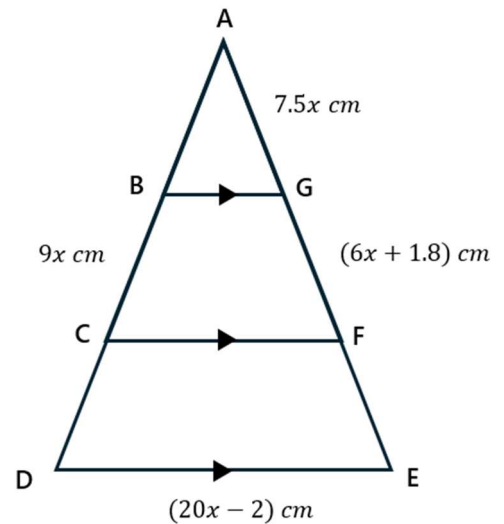
US = 8 cm
RT = 16.8 cm
UV = 12 cm
SV = x cm
VT = 2.4 cm



- a. Work out the length of RS.
b. Work out the length of SV.

Challenge

- 17) ABCD and AGFE are straight lines.
BG is parallel to CF.
CF is parallel to DE.
 $AG : AF : AE = 1 : 2 : 3$
 $AG = 7.5x$ cm
 $GF = (6x + 1.8)$ cm
 $BC = 9x$ cm
 $DE = (20x - 2)$ cm



- a. Work out the length of AC.
b. Work out the length of CF. Give your answer to 3 significant figures.

- 18) The two rectangles shown below are mathematically similar. Given that the ratio $CD : GH = 1 : 3$, write an algebraic expression for y in terms of z .

