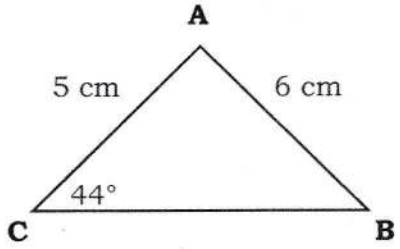
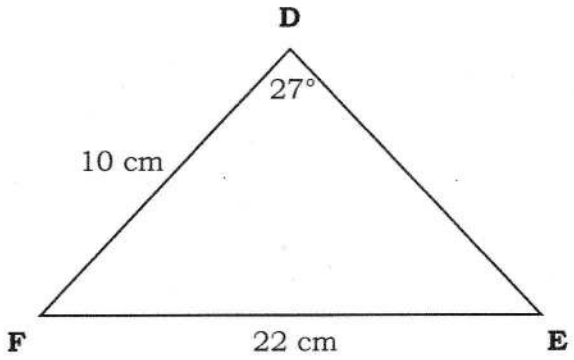
SIMILAR SHAPES – PRACTICE QUESTIONS

1.
Triangles ABC and DEF are similar shapes.

10 ÷ 5 = 2
SF = 2





(a) What is the size of angle CAB?

27°

(b) What is the length of side DE?

6 × 2 = 12 cm

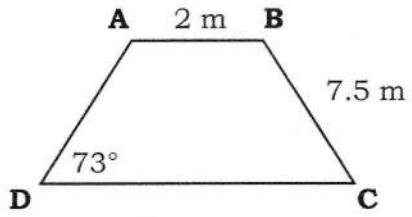
(c) What is the size of angle DFE?

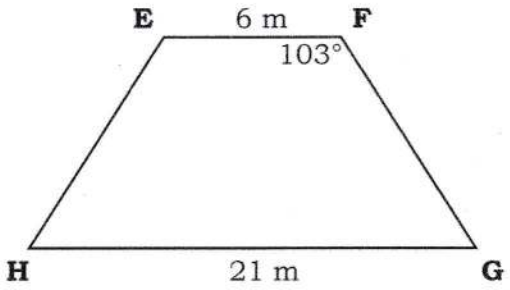
44°

(d) What is the length of side CB?

22 ÷ 2 = 11 cm

2.
Shapes ABCD and EFGH are mathematically similar.





6 ÷ 2 = 3
Scale factor = 3

(a) What is the length of side CD?

21 ÷ 3 = 7 m

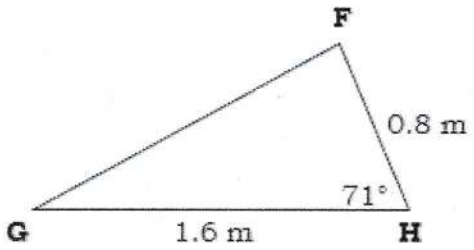
(b) What is the size of angle ABC?

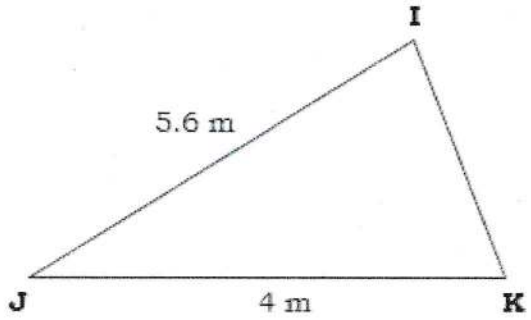
103°

(c) What is the length of side FG?

7.5 × 3 = 22.5 m

3.
Triangles FGH and IJK are mathematically similar.





(a) Find the size of angle IKJ.

71°

$4 \div 1.6 = 2.5$

Scale Factor = 2.5

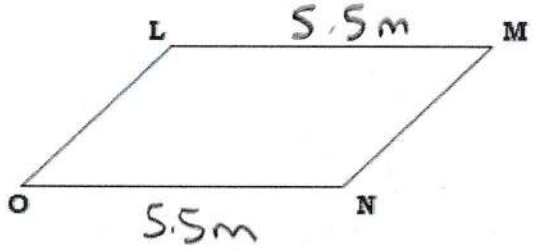
(b) Find the length of line FG.

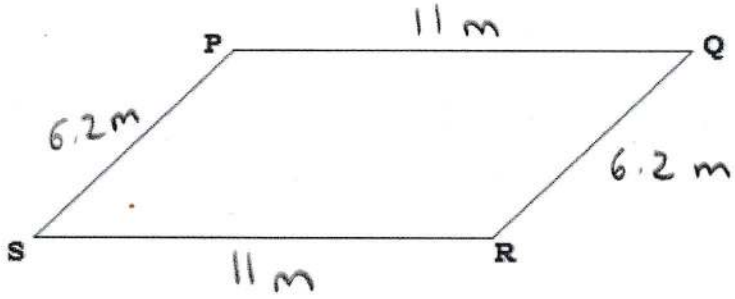
$5.6 \div 2.5 = 2.24$ m

(c) Find the length of line IK.

$0.8 \times 2.5 = 2$ m

4.
Shapes LMNO and PQRS are mathematically similar parallelograms.
LM = 5.5 m
QR = 6.2 m
PQ = 11 m





Find the perimeter of LMNO.

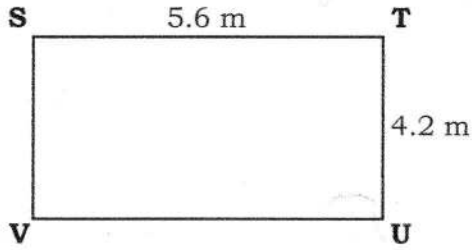
$11 \div 5.5 = 2$

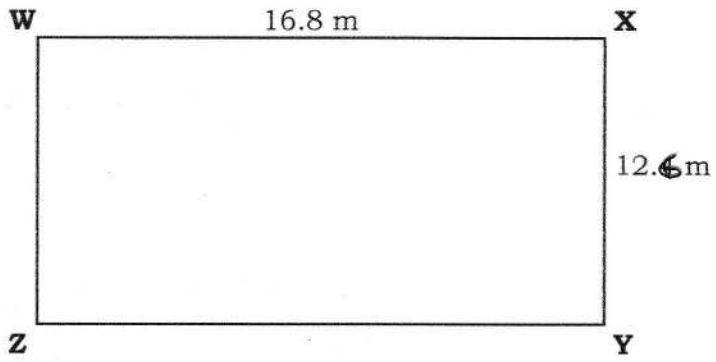
Scale factor = 2

$6.2 \div 2 = 3.1$

Perimeter = $5.5 + 5.5 + 3.1 + 3.1 =$ 17.2 m

5.
STUV and WXYZ are rectangles.





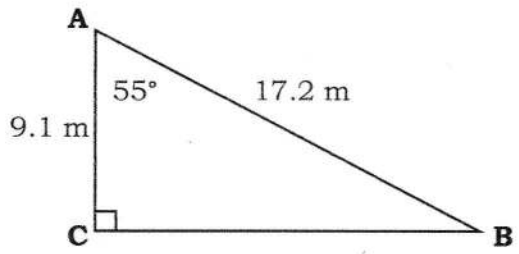
Are STUV and WXYZ mathematically similar? Give a reason for your answer.

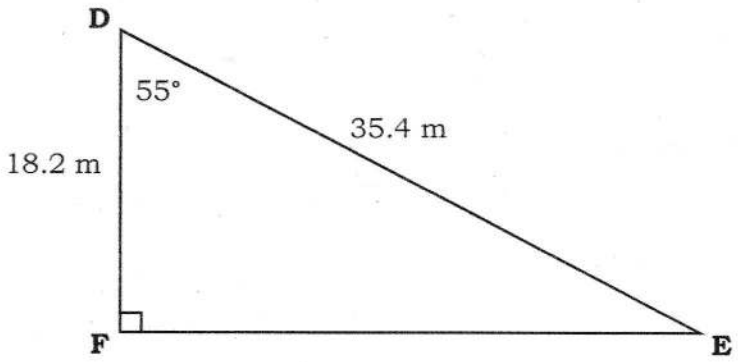
$16.8 \div 5.6 = 3$

$12.6 \div 4.2 = 3$

Yes, because $WX \div ST = XY \div TU$

6.
ABC and DEF are triangles.





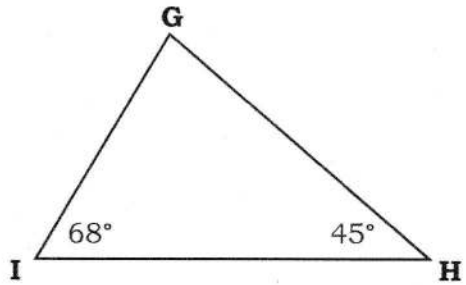
Are ABC and DEF mathematically similar? Give a reason for your answer.

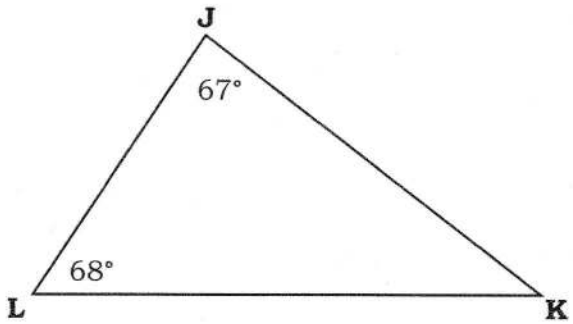
$35.4 \div 17.2 = 2.05\ldots$

$18.2 \div 9.1 = 2$

No, because $DE \div AB \neq DF \div AC$.

7.
GHI and JKL are triangles.





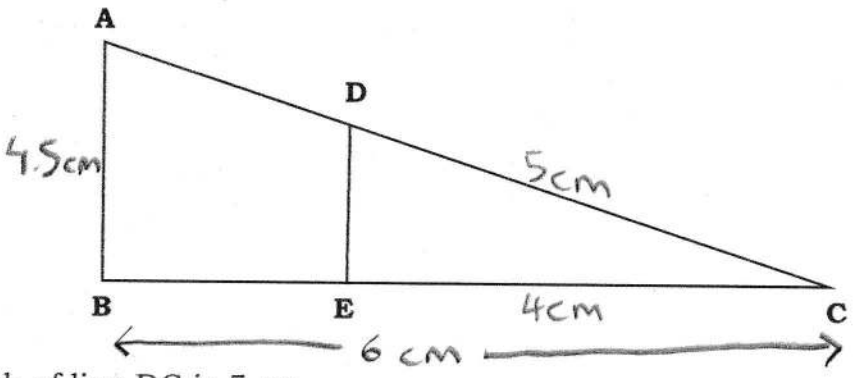
Are GHI and JKL mathematically similar? Give a reason for your answer.

$\angle GHI = 180 - 68 - 45 = 67°$

Yes, because the angles in the triangles are equal.

8.

ABC and DEC are mathematically similar triangles.



The length of line DC is 5 cm.
The length of line BC is 6 cm.
The length of line EC is 4 cm.
The length of line AB is 4.5 cm.

$6 \div 4 = 1.5$

Scale factor = 1.5

(a) Find the length of line DE.

$4.5 \div 1.5 = 3$ cm

(b) Find the length of line AC.

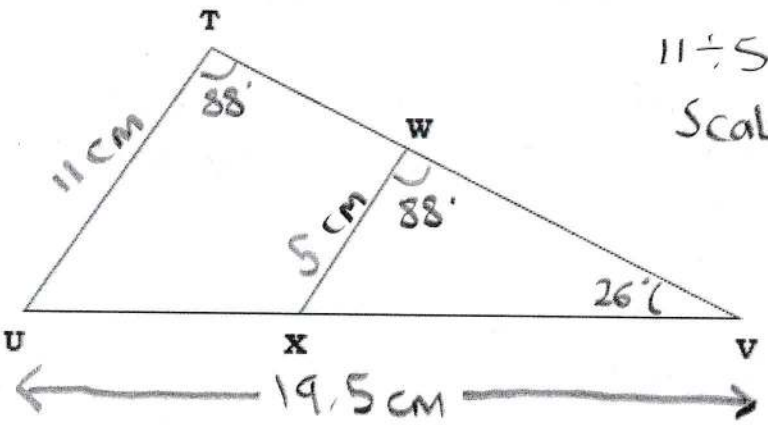
$5 \times 1.5 = 7.5$ cm

(c) Find the length of line AD.

$7.5 - 5 = 2.5$ cm

9.

Triangles TUV and WXV are mathematically similar.



$11 \div 5 = 2.2$

Scale factor = 2.2

WX = 5 cm
UV = 19.5 cm
TU = 11 cm
XWV = 88°
WVX = 26°

(a) Find the size of angle TUV.

$180 - 88 - 26 = 66°$

(b) Find the length of XV to one decimal place.

$19.5 \div 2.2 = 8.863...$

$= 8.9$ cm