

4.5 Answers

GCSE Mathematics Ratio and Similarity

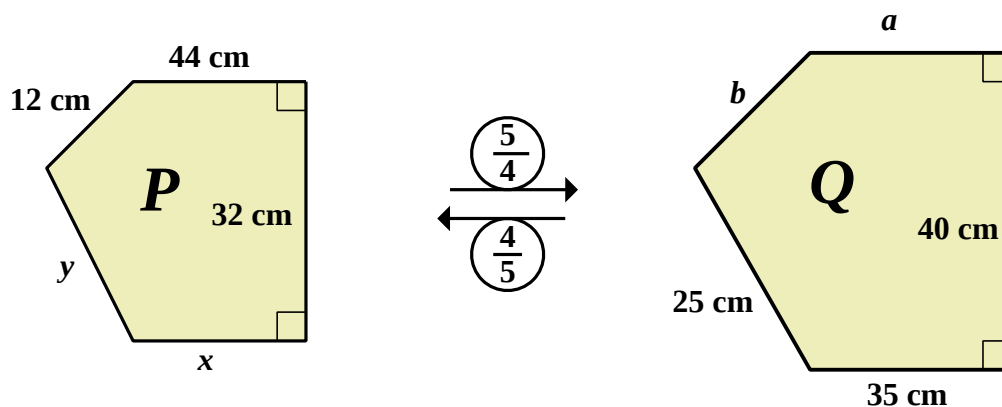
4.5.1 Solutions (4.1 Start Up)

(i) $\frac{5}{2}$	(ii) $\frac{11}{3}$	(iii) $\frac{7}{4}$	(iv) $\frac{1}{2}$
(v) $\frac{15}{2}$	(vi) $\frac{25}{4}$	(vii) $\frac{9}{5}$	(viii) $\frac{13}{8}$
(ix) $\frac{9}{7}$	(x) $\frac{7}{5}$	(xi) $\frac{9}{5}$	(xii) $\frac{18}{5}$
(xiii) $\frac{5}{4}$	(xiv) $\frac{32}{11}$	(xv) $\frac{17}{14}$	(xvi) $\frac{13}{9}$

[16 marks]

[1 mark bonus if all 16 correct]

4.5.2 Solution (4.2 Example)

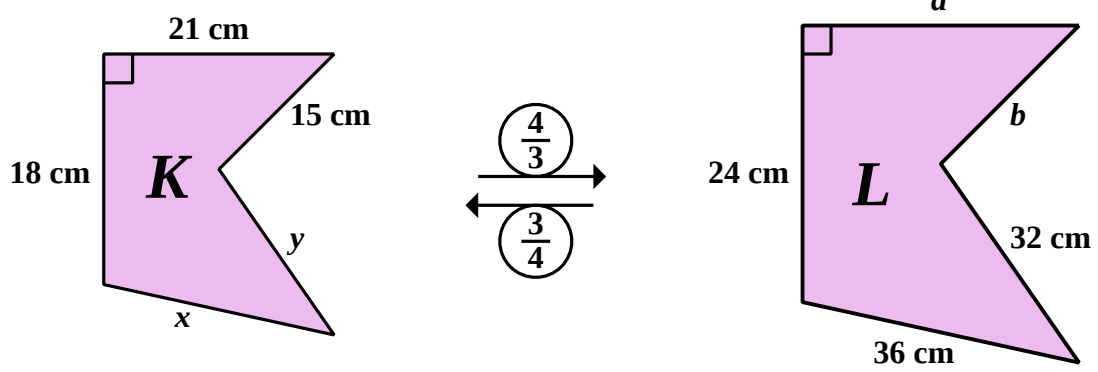


$$\begin{aligned}
 a &= 44 \times \frac{5}{4} & b &= 12 \times \frac{5}{4} & x &= 35 \times \frac{4}{5} & y &= 25 \times \frac{4}{5} \\
 a &= 55 \text{ cm} & b &= 15 \text{ cm} & x &= 28 \text{ cm} & y &= 20 \text{ cm}
 \end{aligned}$$

[4 marks]

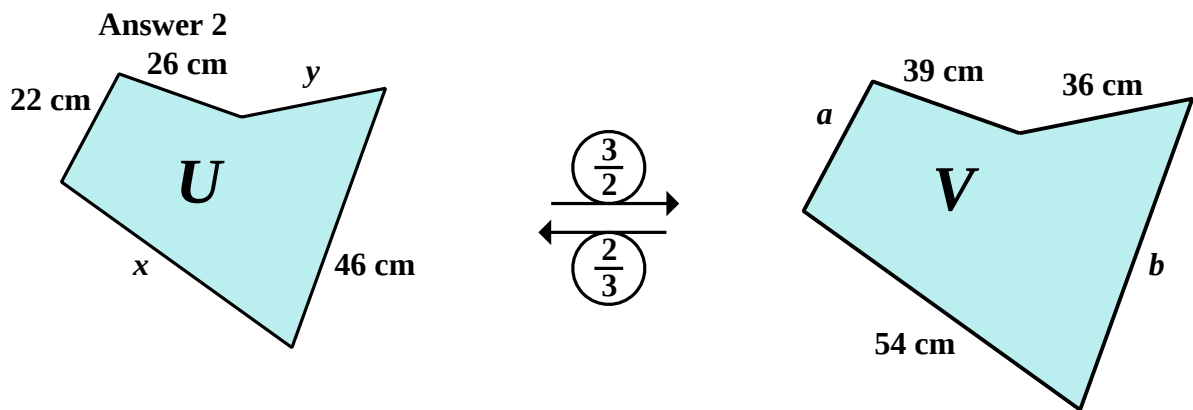
4.5.3 Solutions (4.3 Exercise)

Answer 1



$$\begin{aligned}
 a &= 21 \times \frac{4}{3} & b &= 15 \times \frac{4}{3} & x &= 36 \times \frac{3}{4} & y &= 32 \times \frac{3}{4} \\
 a &= 28 \text{ cm} & b &= 20 \text{ cm} & x &= 27 \text{ cm} & y &= 24 \text{ cm}
 \end{aligned}$$

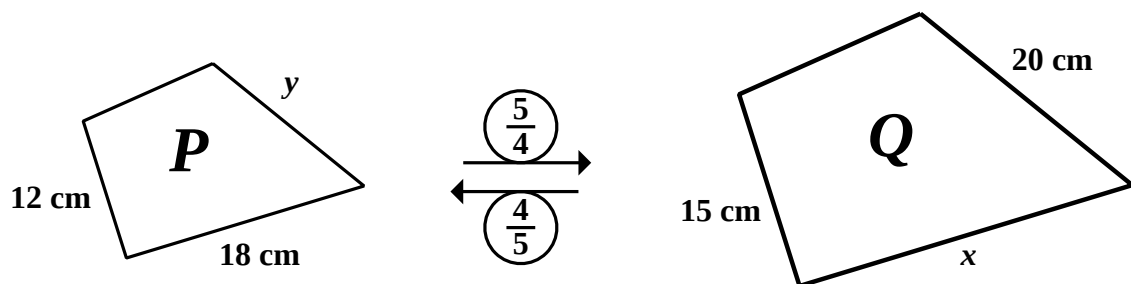
[4 marks]



$$\begin{aligned}
 a &= 22 \times \frac{3}{2} & b &= 46 \times \frac{3}{2} & x &= 54 \times \frac{2}{3} & y &= 36 \times \frac{2}{3} \\
 a &= 33 \text{ cm} & b &= 69 \text{ cm} & x &= 36 \text{ cm} & y &= 24 \text{ cm}
 \end{aligned}$$

[4 marks]

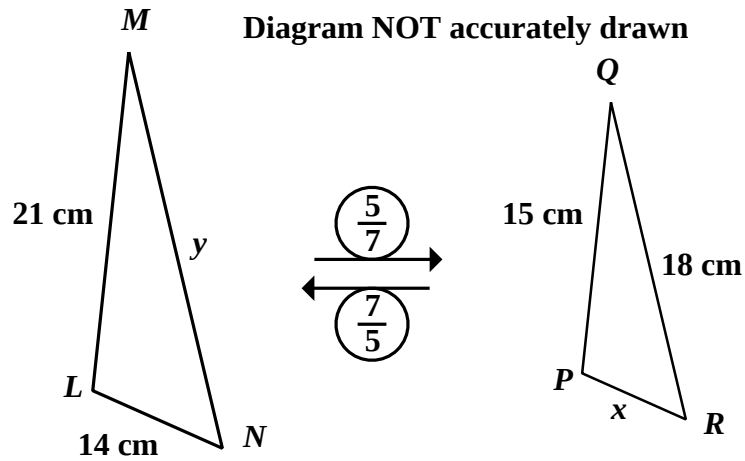
Answer 3



$$\begin{aligned}
 x &= 18 \times \frac{5}{4} & y &= 20 \times \frac{4}{5} \\
 x &= 22.5 \text{ cm} & y &= 16 \text{ cm}
 \end{aligned}$$

[4 marks]

Answer 4

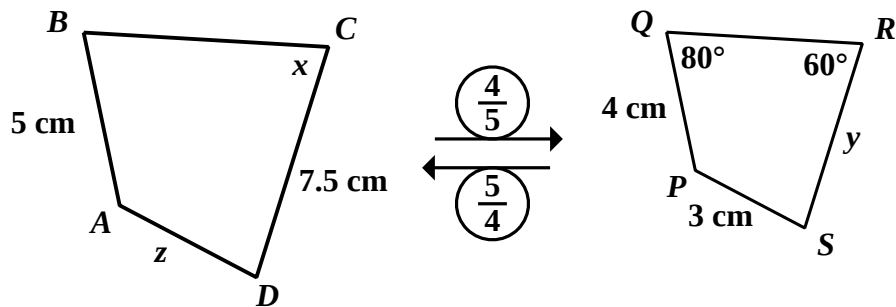


$$x = 14 \times \frac{5}{7} \quad y = 18 \times \frac{7}{5}$$

$$x = 10 \text{ cm} \quad y = 25.2 \text{ cm}$$

[4 marks]

Answer 5

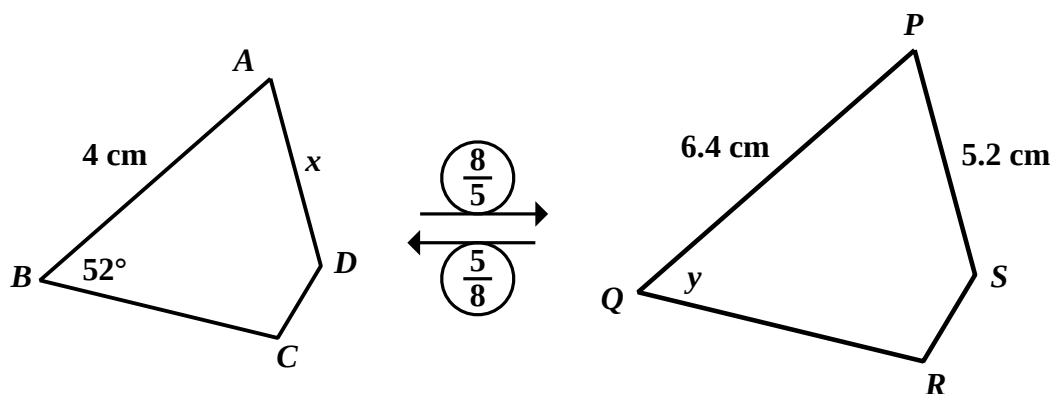


$$x = 60^\circ \quad y = 7.5 \times \frac{4}{5} \quad z = 3 \times \frac{5}{4}$$

$$y = 6 \text{ cm} \quad z = 3.75 \text{ cm}$$

[5 marks]

Answer 6



$$x = 5.2 \times \frac{5}{8} \quad y = 52^\circ$$

$$x = 3.25 \text{ cm}$$

[3 marks]

Answer 7

Yes

☐

No

☒

Not similar because $\frac{\text{long side right rectangle}}{\text{long side left rectangle}} \neq \frac{\text{short side right rectangle}}{\text{short side left rectangle}}$

i.e. $\frac{25}{15} \neq \frac{20}{10}$

[3 marks]