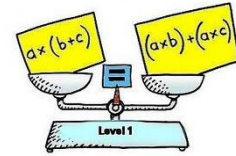




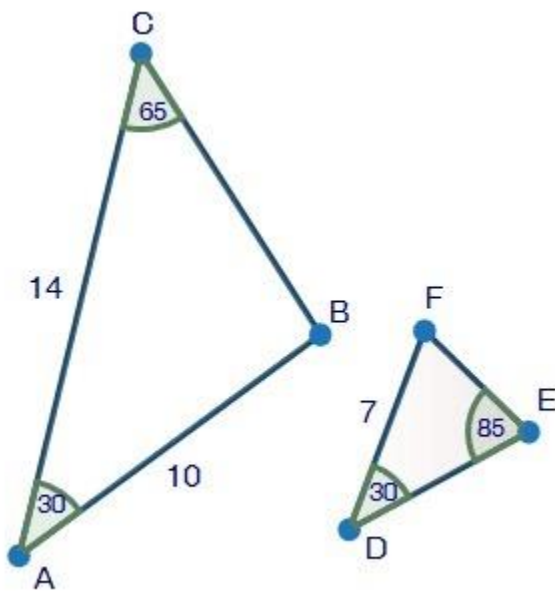
Grade 8 - Mathematics

Geometry of Straight Lines 3

Memo



1. Prove that the following shapes are congruent similar or neither:



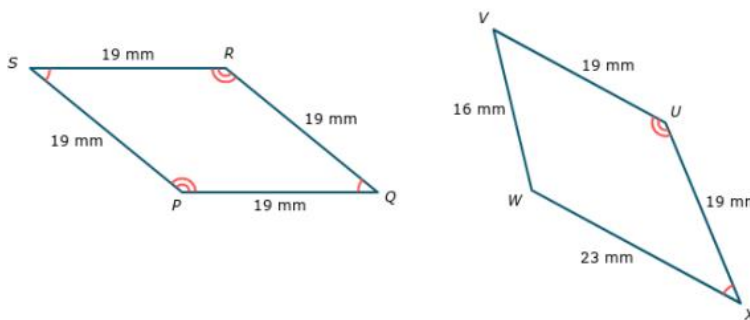
$$\begin{aligned} B &= 180^\circ - (65^\circ + 30^\circ) \text{ (ang in a } \Delta) \\ &= 180^\circ - 95^\circ \\ &= 85^\circ \end{aligned}$$

$$\begin{aligned} F &= 180^\circ - (85^\circ + 30^\circ) \text{ (ang in a } \Delta) \\ &= 180^\circ - 115^\circ \\ &= 65^\circ \end{aligned}$$

CA = 2FD (given)
So lines are proportionate

$\Delta CAB \text{ } \parallel \parallel \Delta FDE$

2. Prove that the following shapes are congruent similar or neither:

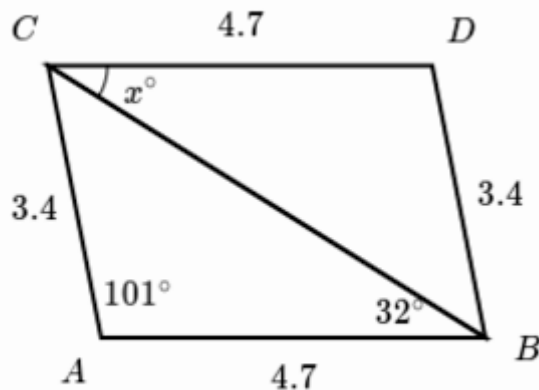


SRQP not congruent or similar to VUXW (not all lines equal or proportionate; not all angles equal)



WorksheetCloud

3. Prove that the two triangles are congruent and then find the value of the unknown angle



$\triangle CAB \equiv \triangle CDB$ (all three sides equal)

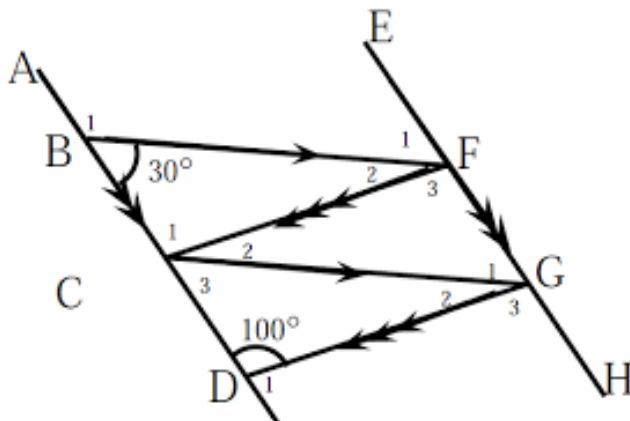
So all three angles equal

$$\begin{aligned} \text{Angle } ACB &= 180^\circ - (101^\circ + 32^\circ) \text{ (ang in } \triangle) \\ &= 180^\circ - 133^\circ \\ &= 47^\circ \end{aligned}$$

$D = 101^\circ$ (opp ang in a parallelogram)

$x = 32^\circ$ (alt angles; $CD \parallel AB$ – opp side of parallelogram //)

4. Work out the unknown values that are necessary to prove that $\triangle BFC$ and $\triangle CGD$ are congruent, similar or neither.



$C_3 = 30^\circ$ (corr ang; $BF \parallel CG$)

$C_1 = 100^\circ$ (corr ang; $CF \parallel DG$)

$F_2 = G_2$ (third ang in triangle)

$BF = CG$ (parallel; meet EF and AD at same ang therefore equal)

$CF = DG$ (reason as above)

So $BC = CD$ (third side)

$\triangle BFC \equiv \triangle CGD$ (all sides and all angles =)