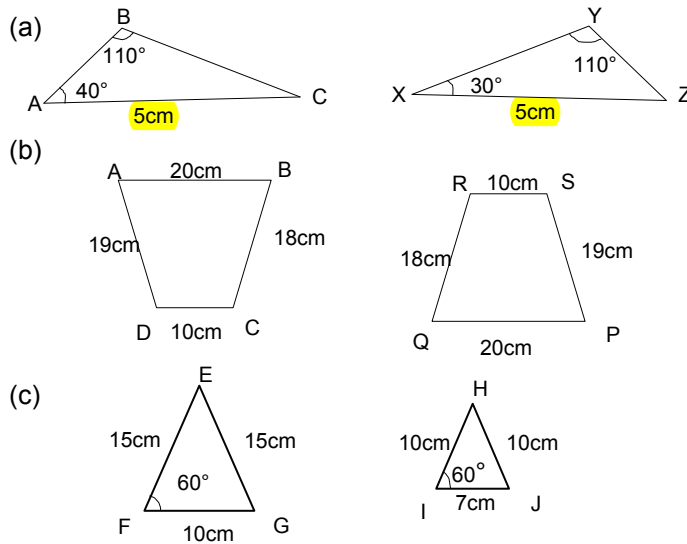


Example 3

Are the following figures (not drawn to scale) congruent to each other? If so, explain why. If not, explain why.



Solution:

- (a) Start by finding out the two missing angles of the 2 figures, since two of the angles of each triangle is given.

$$\angle ACB = 180^\circ - 110^\circ - 40^\circ = 30^\circ$$

$$\angle XZY = 180^\circ - 110^\circ - 30^\circ = 40^\circ$$

$$\angle ACB = \angle ZXY = 30^\circ$$

$$\angle ABC = \angle ZYX = 110^\circ$$

$$\angle BAC = \angle YZX = 40^\circ$$

\therefore The two triangles are congruent because they both have the same shape and size. $\triangle ABC \equiv \triangle ZYX$

- (b) Identify the corresponding sides by looking at their length

$$AB = PQ = 20\text{cm}$$

$$CD = RS = 10\text{cm}$$

$$BC = QR = 18\text{cm}$$

$$AD = PS = 19\text{cm}$$

\therefore The two quadrilaterals are congruent because they both have the same shape and size. $ABCD \equiv PQRS$

- (c) Identify that $\triangle EFG$ and $\triangle HIJ$ are isosceles triangles.

$$\angle EFG = \angle EGF = \angle HIJ = \angle HJI = 60^\circ$$

However, $EF \neq HI$ and $EG \neq HJ$

Hence the two triangles are not congruent because both of them do not have the same size, even though they have the same shape.

