Congruent Triangles Ex 10.3 Q1

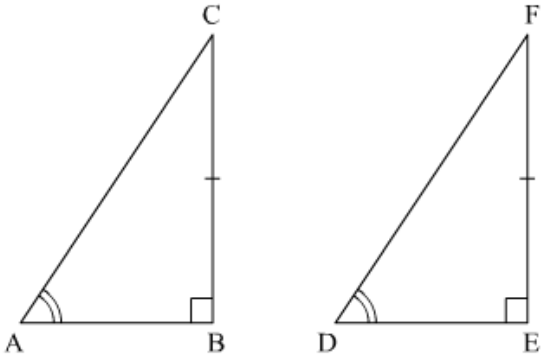
Answer :

It is given that

$\angle A = \angle D$

$BC = EF$

$\angle B = \angle E = 90^0$



We are asked to show that $\Delta ABC \cong \Delta DEF$

Let us assume

ΔABC, and ΔDEF are right angled triangle.

Thus in ΔABC and ΔDEF, we have

$\angle A = \angle D$

$\angle B = \angle E = 90^0$

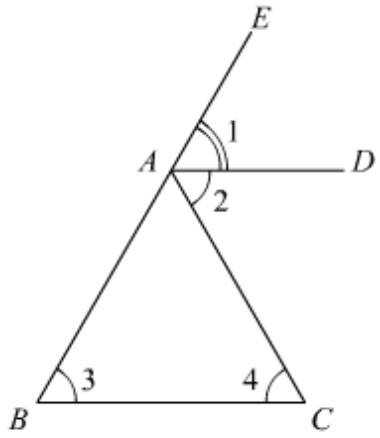
And $BC = EF$ (given)

Hence by AAs congruence criterion we have $\boxed{\Delta ABC \cong \Delta DEF}$ Proved.

Congruent Triangles Ex 10.3 Q2

Answer :

We have to prove that ΔABC is isosceles.



Let ΔABC be such that the bisector AD of $\angle CAE$ is parallel to The base BC, we have

$\angle 1 = \angle 3$ (Corresponding angles)

$\angle 2 = \angle 4$ (Alternate angle)

$\Rightarrow \angle 3 = \angle 4$ (Since $\angle 1 = \angle 2$)

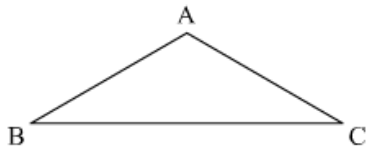
$\Rightarrow AB = AC$

Hence ΔABC is isosceles.

Congruent Triangles Ex 10.3 Q3

Answer :

In the triangle ABC it is given that the vertex angle is twice of base angle.



We have to calculate the angles of triangle.

Now, let ABC be an isosceles triangle such that $AB = AC$

Then

$\angle C = \angle B = x$

$\angle A = 2(\angle B + \angle C)$ (Given)

$\angle A = 2(\angle B + \angle B)$ $(\angle B = \angle C)$

$\angle A = 2(2\angle B)$

$\angle A = 4\angle B$

$\angle A = 4x$

Now $\angle A + \angle B + \angle C = 180^0$ (property of triangle)

$4x + x + x = 180^0$

$6x = 180^0$

$x = 30^0$

$$\angle A = 4x$$

$$= 4 \times 30^0$$

$$= 120^0$$

$$\angle B = \angle C$$

$$= x$$

$$= 30^0$$

Hence

$$\boxed{\begin{aligned} \angle B &= 30^0 \\ \angle C &= 30^0 \end{aligned}}$$

********** END **********