Exercise 5.3

Solve each of the following question using appropriate Euclid's axiom:

Question 11:

In the Fig. 5.11, if OX $= \frac{1}{2}$ XY, PX $= \frac{1}{2}$ XZ and OX = PX, show that XY = XZ.

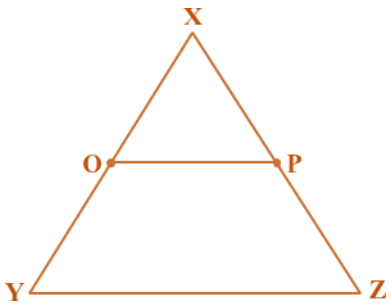

Fig. 5.11

Answer 11:

Given that:

$$OX = \frac{1}{2} XY$$

$\Rightarrow$ $2OX = XY$ … (i)

and $PX = \frac{1}{2} XZ$

$\Rightarrow$ $2PX = XZ$ … (ii)

and $OX = PX$ … (iii)

According to Euclid's axioms, things which are double of the same things are equal to one another.

On multiplying equation (iii) by 2, we get

$$2OX = 2PX$$

$\Rightarrow$ $XY = XZ$ [From (i) and (ii)]