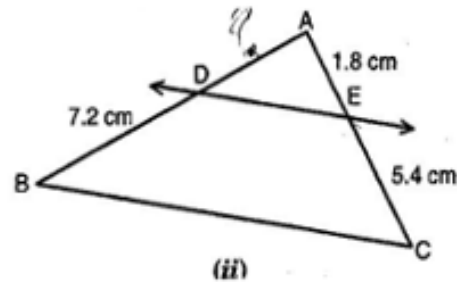
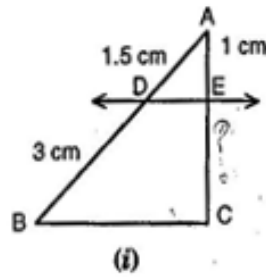




NCERT Solutions For Class 10 Chapter 6 Triangles Exercise 6.2

1. In figure (i) and (ii), $DE \parallel BC$. Find EC in (i) and AD in (ii).



Ans. (i) Since $DE \parallel BC$,

$$\therefore \frac{AD}{DB} = \frac{AE}{EC}$$

$$\Rightarrow \frac{1.5}{3} = \frac{1}{EC}$$

$$\Rightarrow EC = \frac{3}{1.5}$$

$$\Rightarrow EC = 2 \text{ cm}$$

(ii) Since $DE \parallel BC$,

$$\therefore \frac{AD}{DB} = \frac{AE}{EC}$$

$$\Rightarrow \frac{AD}{7.2} = \frac{1.8}{5.4}$$

$$\Rightarrow AD = \frac{1.8 \times 7.2}{5.4}$$

$$\Rightarrow AD = 2.4 \text{ cm}$$

2. E and F are points on the sides PQ and PR respectively of a $\triangle PQR$. For each of the following cases, state whether $EF \parallel QR$:

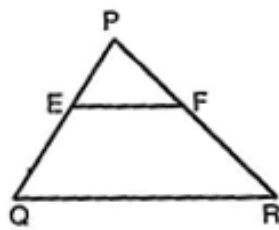
(i) $PE = 3.9 \text{ cm}$, $EQ = 4 \text{ cm}$, $PF = 3.6 \text{ cm}$ and $FR = 2.4 \text{ cm}$

(ii) $PE = 4 \text{ cm}$, $QE = 4.5 \text{ cm}$, $PF = 8 \text{ cm}$ and $RF = 9 \text{ cm}$

(iii) $PQ = 1.28 \text{ cm}$, $PR = 2.56 \text{ cm}$, $PE = 0.18 \text{ cm}$ and $PF = 0.36 \text{ cm}$

Ans. (i) Given: $PE = 3.9 \text{ cm}$, $EQ = 4 \text{ cm}$, $PF = 3.6 \text{ cm}$ and $FR = 2.4 \text{ cm}$

$$\text{Now, } \frac{PE}{EQ} = \frac{3.9}{4} = 0.97 \text{ cm}$$



$$\text{And } \frac{PF}{FR} = \frac{3.6}{2.4} = 1.2 \text{ cm}$$

$$\therefore \frac{PE}{EQ} \neq \frac{PF}{FR}$$

Therefore, EF does not divide the sides PQ and PR of $\triangle PQR$ in the same ratio.

\therefore EF is not parallel to QR.

(ii) Given: PE = 4 cm, QE = 4.5 cm, PF = 8 cm and RF = 9 cm

$$\text{Now, } \frac{PE}{EQ} = \frac{4}{4.5} = \frac{8}{9} \text{ cm}$$

$$\text{And } \frac{PF}{FR} = \frac{8}{9} \text{ cm}$$

$$\therefore \frac{PE}{EQ} = \frac{PF}{FR}$$

Therefore, EF divides the sides PQ and PR of $\triangle PQR$ in the same ratio.

\therefore EF is parallel to QR.

(iii) Given: PQ = 1.28 cm, PR = 2.56 cm, PE = 0.18 cm and PF = 0.36 cm

$$\Rightarrow EQ = PQ - PE = 1.28 - 0.18 = 1.10 \text{ cm}$$

$$\text{And } ER = PR - PF = 2.56 - 0.36 = 2.20 \text{ cm}$$

$$\text{Now, } \frac{PE}{EQ} = \frac{0.18}{1.10} = \frac{18}{110} = \frac{9}{55} \text{ cm}$$

$$\text{And } \frac{PF}{FR} = \frac{0.36}{2.20} = \frac{36}{220} = \frac{9}{55} \text{ cm}$$

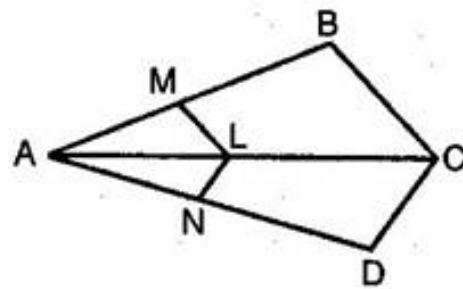
$$\therefore \frac{PE}{EQ} = \frac{PF}{FR}$$

Therefore, EF divides the sides PQ and PR of $\triangle PQR$ in the same ratio.

\therefore EF is parallel to QR.

3. In figure, if $LM \parallel CB$ and $LN \parallel CD$, prove that

$$\frac{AM}{AB} = \frac{AN}{AD}$$



Ans. In $\triangle ABC$, $LM \parallel CB$

$$\therefore \frac{AM}{AB} = \frac{AL}{AC} \text{ [Basic Proportionality theorem]}$$

.....(i)

And in $\triangle ACD$, $LN \parallel CD$

$$\therefore \frac{AL}{AC} = \frac{AN}{AD} \text{ [Basic Proportionality theorem]}$$

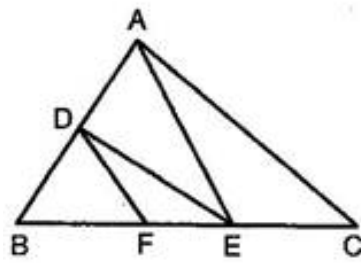
(ii)

From eq. (i) and (ii), we have

$$\frac{AM}{AB} = \frac{AN}{AD}$$

4. In figure, $DE \parallel AC$ and $DF \parallel AE$. Prove that

$$\frac{BF}{FE} = \frac{BE}{EC}.$$



Ans. In $\triangle BCA$, $DE \parallel AC$

$$\therefore \frac{BE}{EC} = \frac{BD}{DA} \text{ [Basic Proportionality theorem] } \dots\dots\dots$$

(i)

And in $\triangle BEA$, $DF \parallel AE$

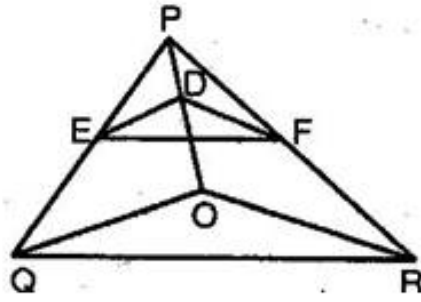
$$\therefore \frac{BF}{FE} = \frac{BD}{DA} \text{ [Basic Proportionality theorem] } \dots\dots\dots$$

(ii)

From eq. (i) and (ii), we have

$$\frac{BF}{FE} = \frac{BE}{EC}$$

5. In figure, $DE \parallel OQ$ and $DF \parallel OR$. Show that $EF \parallel QR$.



Ans. In $\triangle PQO$, $DE \parallel OQ$

$$\therefore \frac{PE}{EQ} = \frac{PD}{DO} \text{ [Basic Proportionality theorem]}$$

(i)

And in $\triangle POR$, $DF \parallel OR$

$$\therefore \frac{PD}{DO} = \frac{PF}{FR} \text{ [Basic Proportionality theorem]}$$

(ii)

From eq. (i) and (ii), we have

$$\frac{PE}{EQ} = \frac{PF}{FR}$$

$\therefore EF \parallel QR$ [By the converse of BPT]

***** END *****