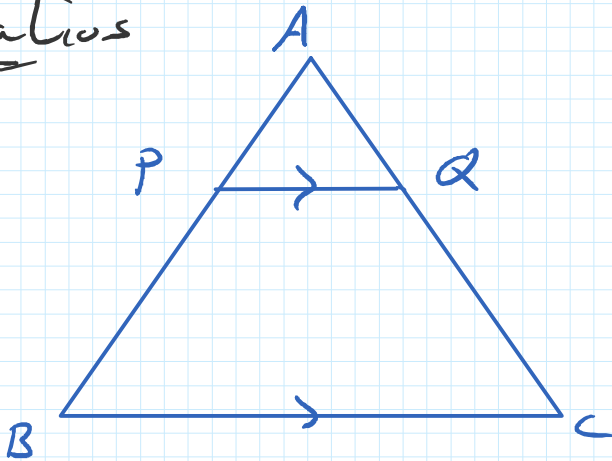


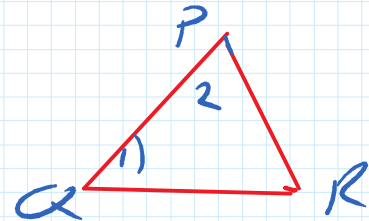
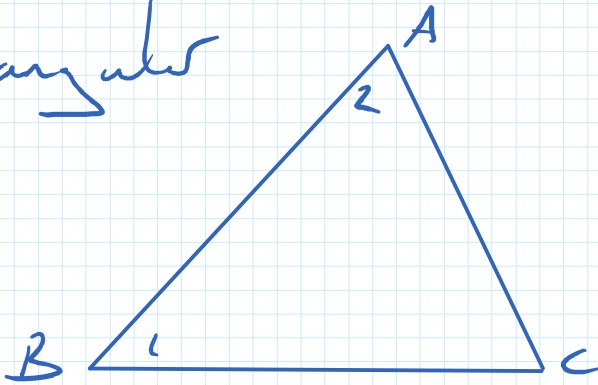
# Ratios



$$\frac{|AP|}{|PB|} = \frac{|AQ|}{|QC|}$$

$$\frac{|AP|}{|AB|} = \frac{|AQ|}{|AC|} = \frac{|PQ|}{|BC|}$$

# Equilateral



$$\frac{|AB|}{|PQ|} = \frac{|BC|}{|QR|} = \frac{|AC|}{|PR|}$$

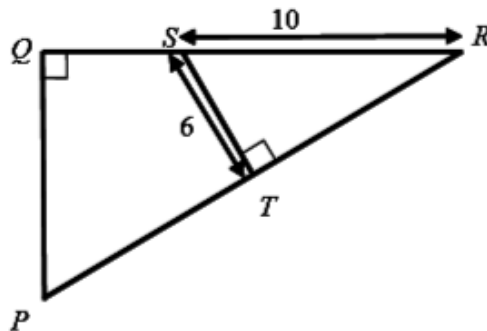
$PQR$  is a right angled triangle.

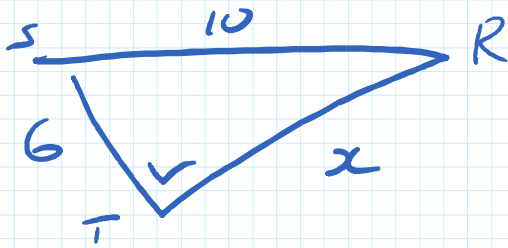
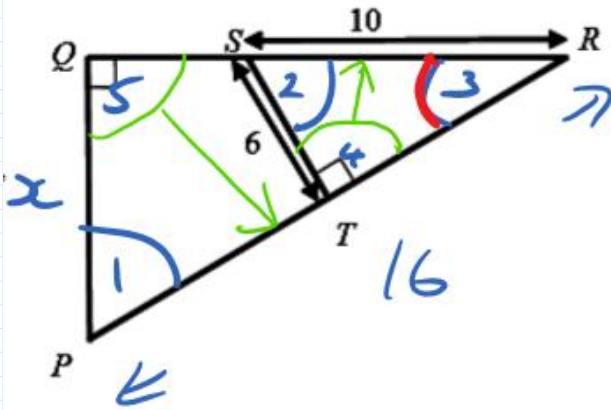
$T$  is the midpoint of  $[PR]$ .

A line is drawn from  $T$  to meet  $[QR]$  at  $S$ ,  
such that  $|\angle RTS|$  is a right angle.

$|ST| = 6$  and  $|SR| = 10$ .

- (i) ✍ Find  $|RT|$ .
- (ii) ✍ Prove that  $|\angle QPR| = |\angle TSR|$ .
- (iii) ✍ Find  $|PQ|$ .





$$x^2 + 6^2 = 10^2$$

$$x = 8$$

(ii)  $\Delta SRT$  and  $\Delta QPR$

$$|\angle 3| = |\angle 3| = \text{same}$$

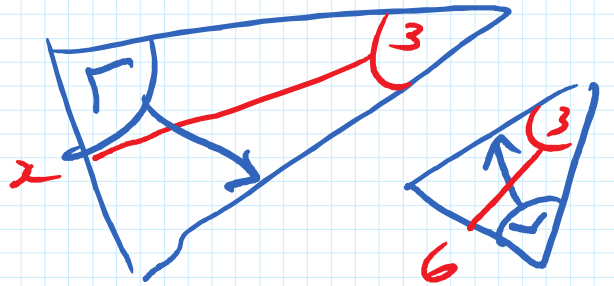
$$|\angle 4| = |\angle 5| = 90^\circ$$

$\Rightarrow |\angle 1| = |\angle 2| = 3^{\text{rd}}$  angles

(iii)

$$\frac{x}{6} = \frac{16}{10}$$

$$x = 9.6$$



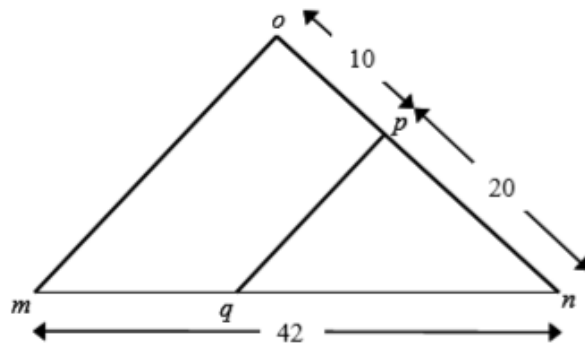
$[om]$  is parallel to  $[pq]$ .

$|op| = 10$  cm,  $|pn| = 20$  cm

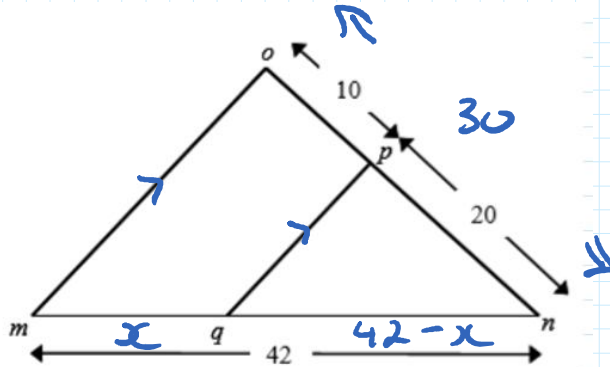
and  $|mn| = 42$  cm.

(i) Find  $|qm|$ .

(ii) If  $|qm| = |pq|$ ,  
find  $|om|$ .



$$\frac{mq}{mn} = \frac{op}{on}$$

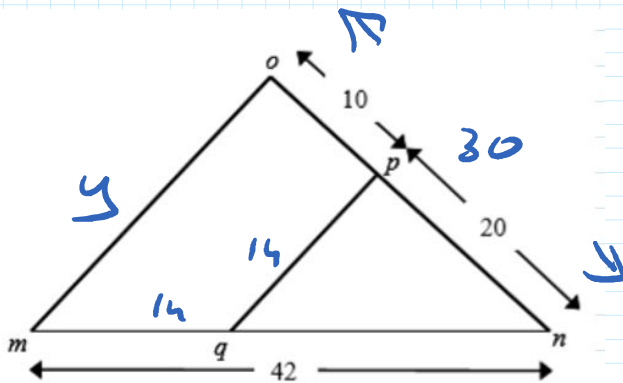


$$\frac{x}{42} = \frac{10}{30}$$

$$x = \frac{1}{3}(42) \\ = 14$$

$$\frac{10}{20} = \frac{x}{42-x} \\ 42-x = 2x \Rightarrow x = 14$$

(ii)



$$\frac{y}{14} = \frac{30}{20}$$

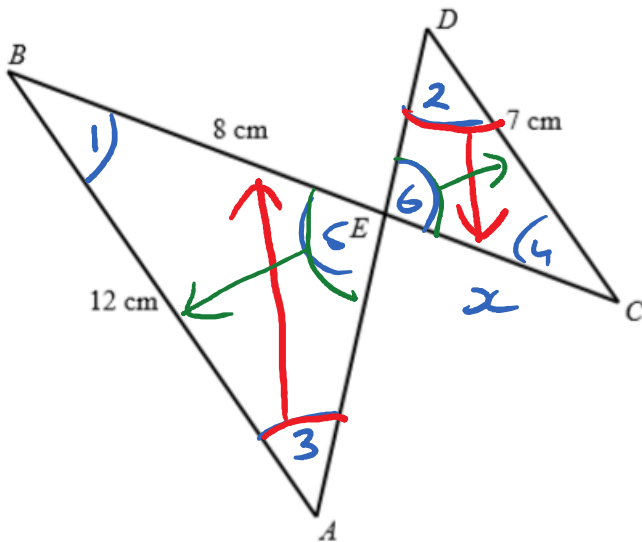
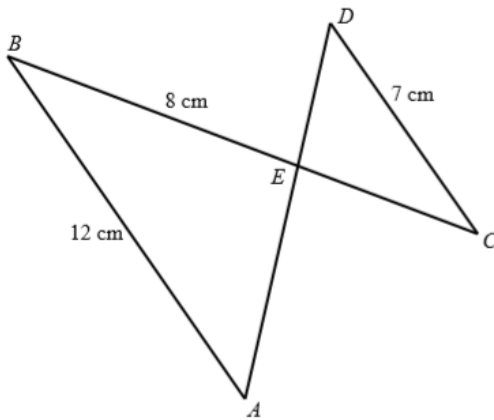
$$y = \frac{3}{2}(14) \\ = 21$$

$AB$  is parallel to  $CD$ .  $BC$  and  $AD$  intersect at the point  $E$ .

(i) Prove that the triangles  $ABE$  and  $CDE$  are equiangular.

$|AB| = 12$  cm,  $|BE| = 8$  cm and  $|CD| = 7$  cm.

(ii) Find  $|EC|$  correct to one decimal place.



$\angle 1 = \angle 4 = \text{alternate}$   
 $\angle 3 = \angle 2 = \text{alternate}$   
 $\angle 5 = \angle 6 = \text{vertically opposite}$

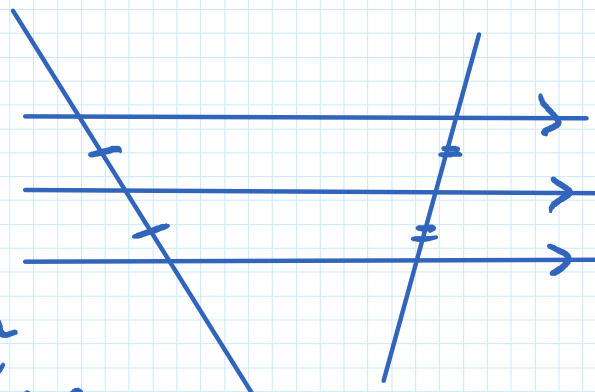
$$\frac{x}{8} = \frac{7}{12}$$

$$x = \frac{56}{12}$$

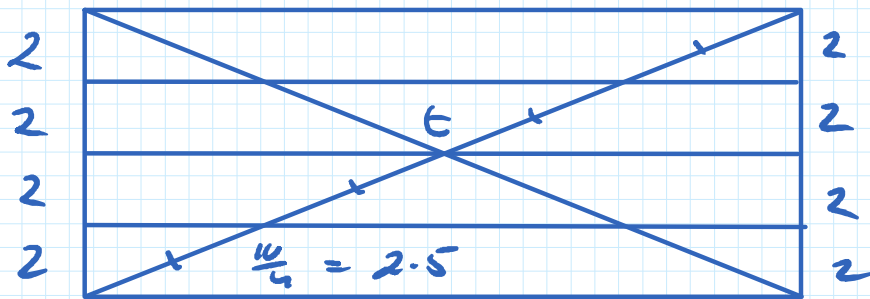
$$x = 4.6 \text{ cm.}$$

### Theorem

If three parallel lines cut off equal segments on some transversal line, then they will cut



off any equal segments on other transversal.



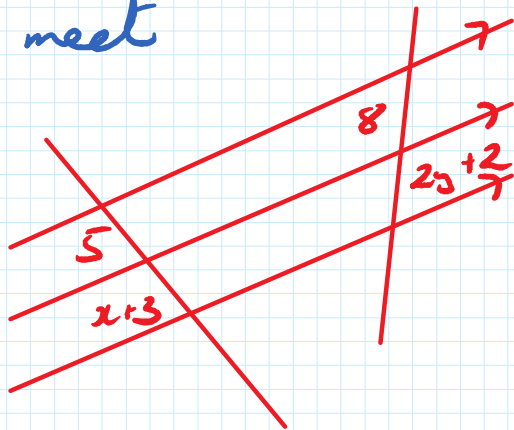
late.

6

$$t^2 = 6^2 + 8^2$$

$$t = 10$$

Intercept = meet



Parallel lines cut equal intercepts with some transversal.

Find  $x$  and

$y$

$$x + 3 = 5$$

$$x = 2$$

$$2y + 2 = 8$$

$$2y = 6$$

$$y = 3$$