

# Parallel Lines

Q1

**Answer :**

Following are the parallel edges of the top.

$AD \parallel BC$

*This is because AD and BC will not intersect even if both these line segments are produced indefinitely in both the directions.*

$AB \parallel DC$

*This is because AB and DC will not intersect even if both these line segments are produced indefinitely in both the directions.*

Q2

**Answer :**

*The groups of parallel edges are  $(AD \parallel GH \parallel BC \parallel FE)$ ,  $(AB \parallel DC \parallel GF \parallel HE)$  and  $(AH \parallel BE \parallel CF \parallel DG)$ .*

*The above mentioned groups of edges are parallel because they will not meet each other if produced indefinitely to both sides.*

Q3

**Answer :**

(i)

$DE \parallel BC$

*This is because they do not intersect each other.*

(ii)

$AB \parallel DC$  and  $AD \parallel BC$

*This is because these pairs of line segments do not intersect each other.*

(iii)

$AB \parallel DC$  and  $AD \parallel BC$

*This is because these pairs of line segments do not intersect each other.*

*AB does not intersect DC and AD does not intersect BC.*

(iv)

$LM \parallel RQ$ ,  $RS \parallel PM$  and  $LS \parallel PQ$

*These pairs of line segments are non-intersecting.*

*So, these pairs of lines are parallel.*

(v)

$AB \parallel DC$ ,  $AB \parallel EF$ .  $DC \parallel EF$

$AC \parallel BD$ ,  $CE \parallel DF$

*These pairs of line segments are non-intersecting.*

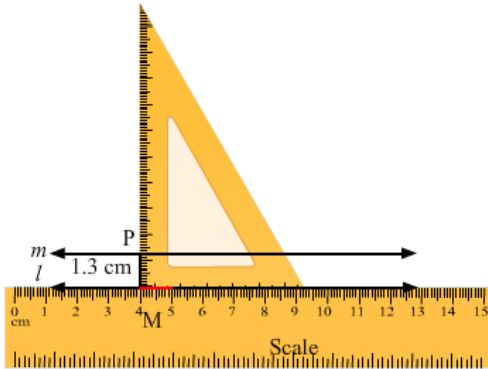
*So, these pairs of lines are parallel.*

Q4

**Answer :**

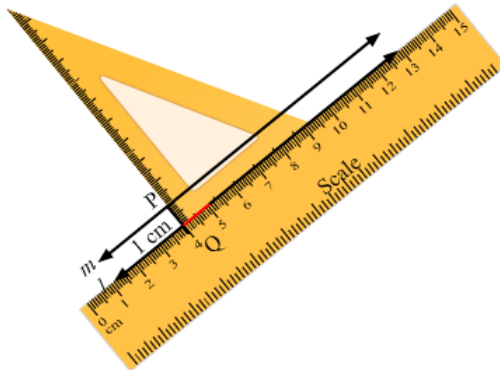
(i) Distance between  $l$  and  $m$  is 1.3 cm.

Place the ruler so that one of its measuring edges lies along the line  $l$ . Hold it with one hand. Now place a set square with one arm of the right angle coinciding with the edge of the ruler. Draw the line segment  $PM$  along the edge of the set square, as shown in the figure. Then, measure the distance ( $PM$ ) between  $l$  and  $m$ , which will be equal to 1.3 cm.



(ii) Distance between  $l$  and  $m$  is 1 cm.

Place the ruler so that one of its measuring edges lies along the line  $l$ . Hold it with one hand. Now place a set square with one arm of the right angle coinciding with the edge of the ruler. Draw the line segment  $PM$  along the edge of the set square, as shown in figure. Then, measure the distance ( $PQ$ ) between  $l$  and  $m$  as 1 cm.



Q6

**Answer :**

Line segments AB and CD will intersect if they are produced endlessly towards the ends A and C, respectively.

Therefore, they are not parallel to each other.

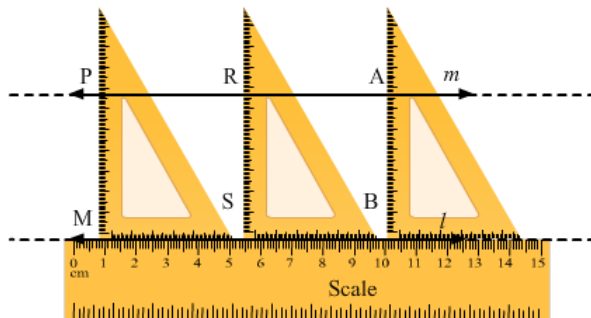
Q7

**Answer :**

(i) Place the ruler so that one of its measuring edges lies along the line  $l$ . Hold it firmly with one hand. Now place a set square with one arm of the right angle coinciding with the edge of the ruler. Draw line segments between  $l$  and  $m$  (say PM, RS, AB) with the set square.

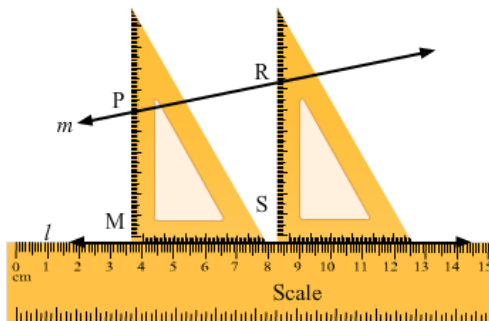
Now, we see that  $PM = AB = RS$ .

Thus, we can say that  $l \parallel m$ .



(ii) In this case, we see that when we draw line segments between  $l$  and  $m$ , they are unequal, i.e.  $PM \neq RS$ .

Therefore,  $l$  is not parallel to  $m$ .



Q8

**Answer :**

(i) True

The statement is true because such lines do not intersect even when produced.

(ii) True

Perpendicular distance between two parallel lines is same at all points on the lines.

(iii) True

If the corresponding lines are produced infinitely, they will not intersect. Hence, they are parallel.

(iv) True

The corresponding lines determined by them will not intersect. Hence, they are parallel to each other.