# Exercise 5.2

Question: 1 How would you rewrite Euclid's fifth postulate so that it would be easier to understand?

Answer:

Euclid's Fifth Postulate: If a straight line falling on two straight lines makes the interior angles on the same side of it taken together less than two right angles, then the two straight lines, if produced indefinitely, meet on that side on which the sum of angles is less than two right angles.
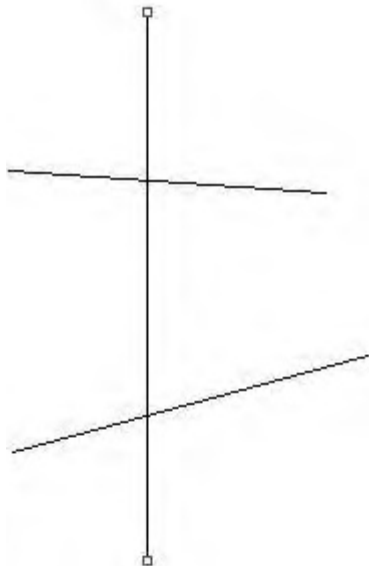

From the figure, we can see that the two lines that are not parallel and make acute angles, will intersect at the side which is towards the acute angle. Now we can look at this Postulate from a different point of view, we can say that the lines that are not parallel to each other, intersect with each other where the inclination is towards meeting them.

Question: 2 Does Euclid's fifth postulate imply the existence of parallel lines? Explain.

Answer:

Fifth postulate of Euclid geometry: If a straight line falling on two straight lines makes the interior angles on the same side of it taken together less than two right angles, then the two straight lines, if produced indefinitely, meet on that side on which the sum of angles is less than two right angles.

Now according to this postulate if the straight lines will not meet when the angles made are equal, the lines will not intersect and hence the lines are parallel.
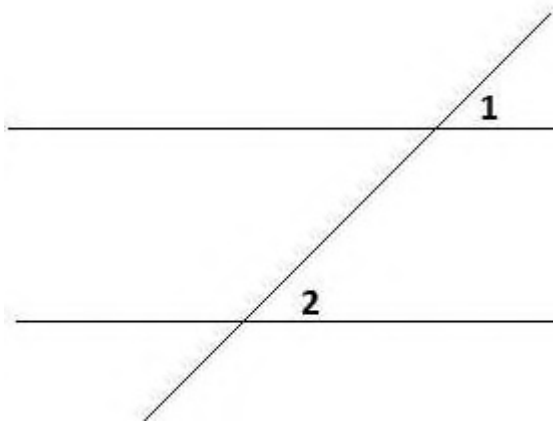
From the figure if angles 1 and 2 are equal then the lines when extended to infinity will not intersect and hence will be parallel.