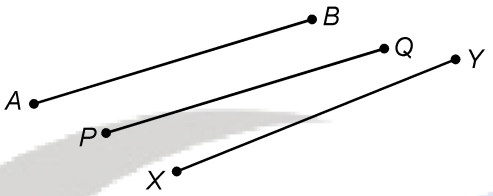
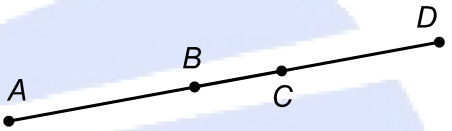
1. Which of the following statements are true and which are false ? Give reasons for your answers.
   (i) Only one line can pass through a single point.
   (ii) There are infinite number of lines which pass through two distinct points.
   (iii) A terminated line can be produced on both sides.
   (iv) If two circles are equal, then their radii are equal.
   (v) In figure, if AB = PQ and PQ = XY, then AB = XY.

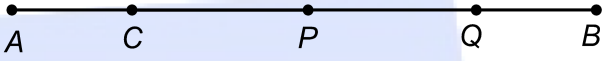


2. A line segment has one and only one mid-point.

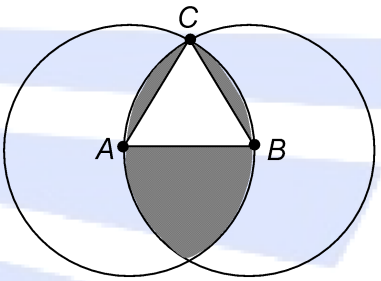
3. In figure, if AC = BD, then prove that AB = CD.



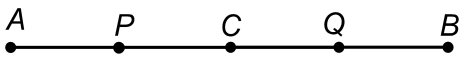
4. In figure, AC = PQ and CP = BQ,
   Prove that P is mid-point of the line segment AB.



5. In figure, A and B are the centres of the two intersecting circles. With the help of Euclid's first axiom, prove that in figure the ΔABC is an equilateral triangle.



6. Does Euclid's fifth postulate imply the existence of parallel line ? Explain.
7. Consider two 'postulates' given below :
   (i) Give any two distinct points A and B, there exists a third point C which is in between A and B.
   (ii) There exist at least three points that are not on the same line.
   Do these postulates contain any undefined terms ? Are these postulates consistent ?
   Do they follow Euclid's postulates ? Explain.
8. In figure, C is mid-point of the segment AB. P and Q are mid-points of the segments AC and BC respectively.



Prove that $AP = BQ = \frac{1}{4}AB$.