

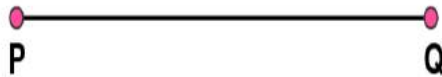
EXERCISE 14.3

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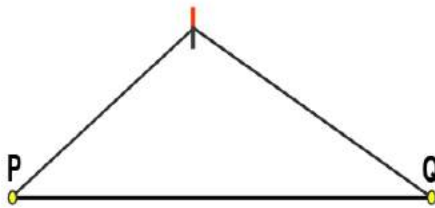
1. Draw any line segment \overline{PQ} . Without measuring \overline{PQ} , construct a copy of \overline{PQ} .

Solutions:

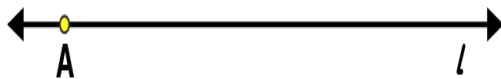
(1) Let the given line segment be \overline{PQ}



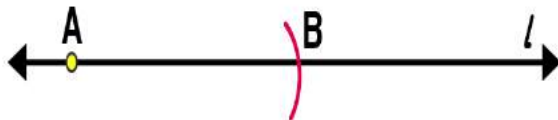
(2) Adjust the compasses up to the length of \overline{PQ}



(3) Draw any line l and mark a point A on it



(4) Place the pointer on point A, without changing the setting of compasses, draw an arc to cut the line segment at B point.



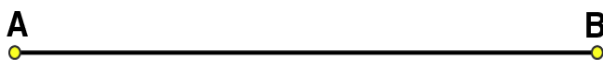
\overline{AB} is the required line segment

2. Given some line segment \overline{AB} , whose length you do not know, construct \overline{PQ} such that the length of \overline{PQ} is twice that of \overline{AB} .

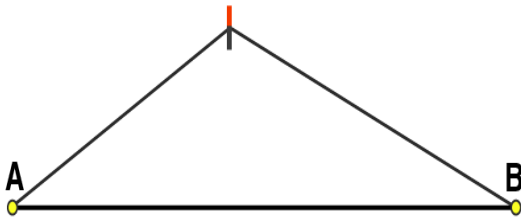
Solutions:

Following steps are followed to construct a line segment \overline{PQ} such that the length of \overline{PQ} is twice that of \overline{AB}

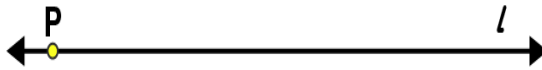
(1) Let the given line segment be \overline{AB}



(2) Adjust the compasses up to the length of \overline{AB}



(3) Draw a line l and mark a point P on it



(4) Place the pointer on P , draw an arc to cut the line segment at point X , without changing the setting of compasses



(5) Again with same radius as before, by placing the pointer on point X , draw an arc to cut the line l at point Q



\overline{PQ} is the required line segment.