Probability and random variables assignment

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1 Q8 C)

1.1. Using ruler and compass only, construct a △ABC such that BC = 5 cm and AB = 6.5 cm and ∠ABC = 120°
(i) Construct a circum-circle of △ABC
(ii) Construct a cyclic quadrilateral ABCD, such that D is equidistant from AB and BC.

Solution: Steps of construction:
1. The point A is taken as origin and a line segment AB = 6.5 cm is drawn along positive x-axis.
2. Draw a line segment emerging from B at ∠120° in anticlockwise direction from BA of length 5 cm.
3. Name the other endpoint of the line segment as C.
4. Join AC. This completes the △ABC.
5. Now take the perpendicular bisector of any two sides, mark their point of intersection as E(centre of circumcircle).
6. Taking E as centre and EA=EB=EC as radius draw a circle(circumcircle).
7. Take internal angle bisector of AB and BC, let its point of intersection with the circumcircle be D.
8. Join AD and CD.

(i)1.1.1
center of the circumcircle is the point of intersection of the perpendicular bisectors of AB and BC.

(ii)1.1.2
the point D of the cyclic quadrilateral ABCD is the point of intersection of the angle bisectors of AB and BC and the circumcircle.

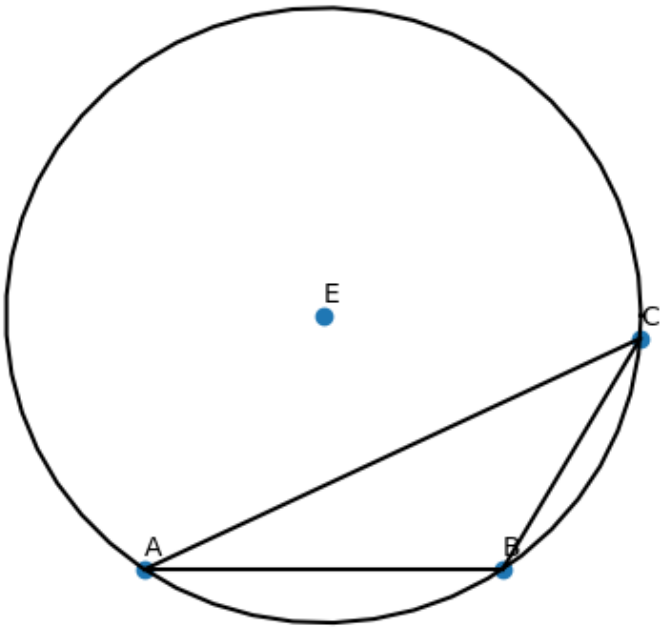

Fig. 1.1.1.

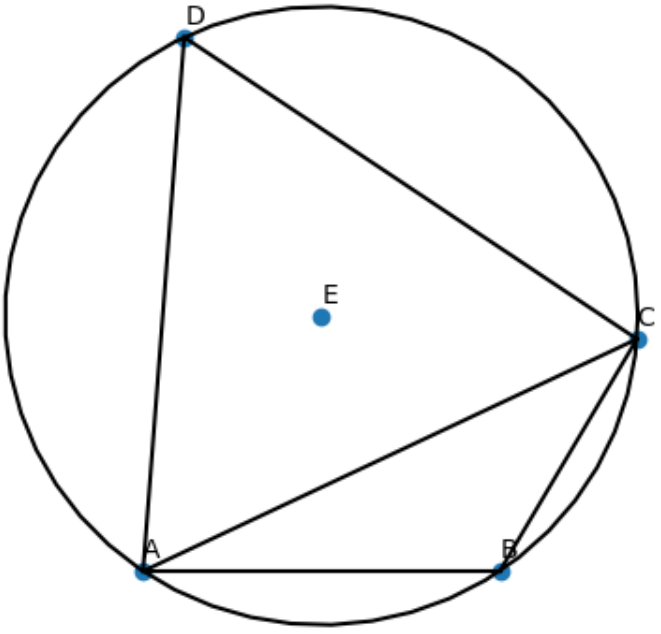

Fig. 1.1.2.