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برائے مہربانی نوٹس کاپی اور استعمال کرتے وقت اس لائسنس کا خیال رکھیں۔

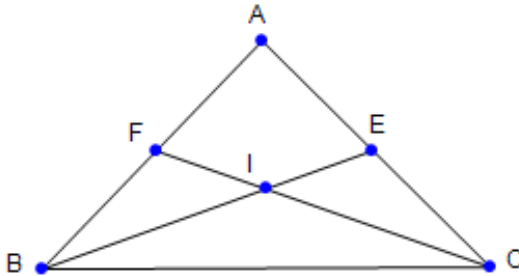
Q.1 Prove that any two medians of an equilateral triangle are equal in measure.

Solution: Given: In $\triangle ABC$ is an equilateral triangle.

$$\overline{AB} = \overline{AC} = \overline{BC}$$

\overline{BE} and \overline{CF} are its medians.

To prove: $\overline{BE} \cong \overline{CF}$



Proof:

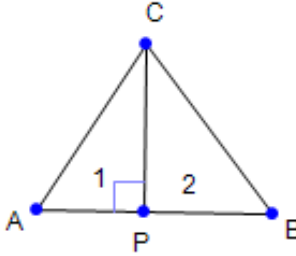
Statement	Reasons
In $\triangle BCE \leftrightarrow \triangle CBF$	
$\overline{BC} \cong \overline{BC}$	Common
$\angle FBC \cong \angle ECB$	Angles of equilateral triangles
$\overline{BF} \cong \overline{CE}$	Half of equal sides
$\triangle BCE \cong \triangle CBF$	$S.A.S \cong S.A.S$
Hence $\overline{BE} \cong \overline{CF}$	

Q.2 Prove that a point, which is equidistant from the end points of a line segment, is on the right bisector of the line segment.

Solution: Given:

\overline{AB} is a line segment. The point C is such that $\overline{CA} \cong \overline{CB}$

To prove: Point C lies on the right bisector of \overline{AB} .



Construction:

- (i) Take P as the midpoint of \overline{AB} . i.e. $\overline{AP} \cong \overline{BP}$.
- (ii) Join point C to A, B and P .

Proof:

Statement	Reasons
In $\triangle ABC$	
$\overline{CA} \cong \overline{CB}$	Given
$\angle A \cong \angle B$	Corresponding angles of congruent triangles.
$\overline{CP} \cong \overline{CP}$	Common side
$\triangle CAP \cong \triangle CBP$	$S.A.S. \cong S.A.S$
$\therefore \angle 1 \cong \angle 2$	Angle of congruent triangle
$m\angle 1 + m\angle 2 = 180^\circ$	Adjunction angles on one side of a line
Thus $m\angle 1 = m\angle 2 = 90^\circ$	
Hence \overline{CP} is right bisector of \overline{AB} and point C lies on \overline{CB}	

Mathematics 9 by Dr. Karamat H. Dar and Prof. Irfan-ul-Haq.

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