

Congruent Segments

Construct a segment congruent to \overline{AB} .

1 Draw ℓ . Choose a point on ℓ and label it C .

2 Open the compass to distance AB .

3 Place the point of the compass at C and make an arc through ℓ . Find the point where the arc and ℓ intersect and label it D .

$\overline{CD} \cong \overline{AB}$

Be sure you keep the same span.

Congruent Angle

Construct an angle congruent to $\angle A$.

1 Use a straightedge to draw a ray with endpoint D .

2 Place the compass point at A and draw an arc that intersects both sides of $\angle A$. Label the intersection points B and C .

3 Using the same compass setting, place the compass point at D and draw an arc that intersects the ray. Label the intersection E .

4 Place the compass point at B and open it to the distance BC . Place the point of the compass at E and draw an arc. Label its intersection with the first arc F .

5 Use a straightedge to draw \overline{DF} .

$\angle D \cong \angle A$

Sweep a helper arc first.

Segment Bisector (Perpendicular Bisector) $\rightarrow 2 \cong$ segments (also to locate midpoint)

Construction Perpendicular Bisector of a Segment

1 Draw \overline{AB} . Open the compass wider than half of AB and draw an arc centered at A .

2 Using the same compass setting, draw an arc centered at B that intersects the first arc at C and D .

3 Draw \overline{CD} . \overline{CD} is the perpendicular bisector of \overline{AB} .

Be sure you keep the same span.

Angle Bisector $\rightarrow 2 \cong \angle$'s

Construct the bisector of $\angle A$.

1 Place the point of the compass at A and draw an arc. Label its points of intersection with $\angle A$ as B and C .

2 Without changing the compass setting, draw intersecting arcs from B and C . Label the intersection of the arcs as D .

3 Use a straightedge to draw \overline{AD} . \overline{AD} bisects $\angle A$.

Sweep a helper arc first.