

### Definitions

A \_\_\_\_\_ is a ruler with no markings on it.

A \_\_\_\_\_ is a geometric tool used to draw circles and parts of circles called arcs.

A \_\_\_\_\_ is a geometric figure drawn using a straightedge and a compass.

\_\_\_\_\_ are two lines that intersect to form right angles.

A \_\_\_\_\_ of a segment is a line, segment, or ray that is perpendicular to the segment at its midpoint.

### Examples

#### Example 1; Construct Congruent Segments

Construct a segment congruent to a given segment

Given:  $\overline{AB}$

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



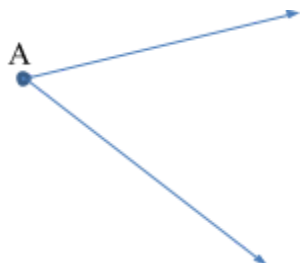
1. Draw a ray with endpoint C.
2. Set compass to length AB.
3. Set the end on point C and draw an arc through the ray.
4. Label the intersection point D.

#### Example 2; Construct Congruent Angles

Construct an angle congruent to a given angle

Given:  $\angle A$

Construct:  $\angle S \cong \angle A$



1. Draw a Ray with endpoint S.
2. With the compass on point A, draw an arc that intersects both sides. Label the Intersection B and C.
3. With the same compass setting, place the end on S, draw an arc and label the intersection R.
4. Open the compass to length BC and place the compass with the same setting with its end on R. Draw an arc intersecting the previous arc. Label the point T.
5. Draw ST.

### Examples

*Example 3: Construct the Perpendicular Bisector*

Construct a perpendicular bisector to the given segment.

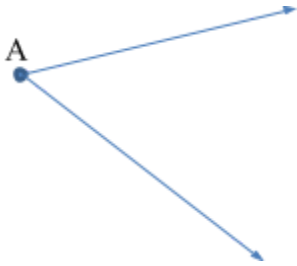
Given:  $\overline{AB}$       Construct:  $\overline{CD}$  as a perpendicular bisector of  $\overline{AB}$



1. Put the compass end on A. Draw a large arc. IT must be more than  $\frac{1}{2}$  the length of AB.
2. Using the same compass setting, put the compass end on B, draw another large arc that intersects the first.
3. Label intersections X and Y.
4. Draw XY, label intersection M.

*Example 4: Constructing the Angle Bisector*

Given:  $\angle A$       Construct:  $\overrightarrow{AD}$ , the bisector of  $\angle A$



1. Put the compass end on A and draw an arc intersecting both angle sides, label them B and C.
2. Put the compass on B and draw an arc.
3. Using the same compass setting, put the compass on C, draw an arc and label where they intersect point D.
4. Draw AD.

**Summary:**

*What is one thing you learned or found interesting in this lesson?*

*What is one thing you are still confused about?*