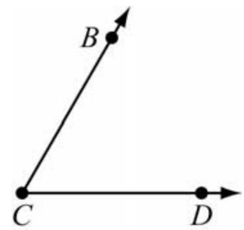
REVIEW EXAMPLES

1. Allan drew angle *BCD*.

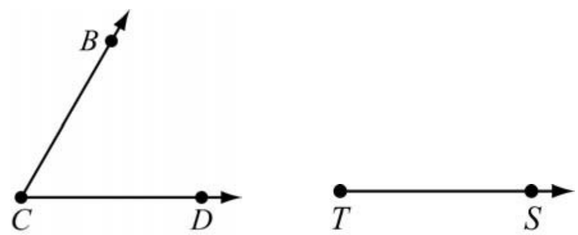


a. Copy angle *BCD*. List the steps you used to copy the angle. Label the copied angle *RTS*.

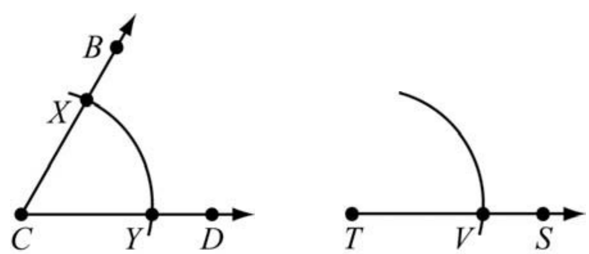
b. Without measuring the angles, how can you show they are congruent to one another?

Solution:

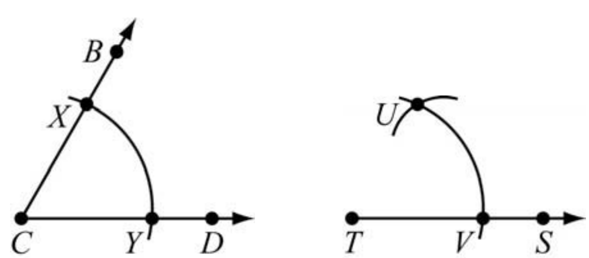
a. Draw point *T*. Draw $\overrightarrow{TS}$.



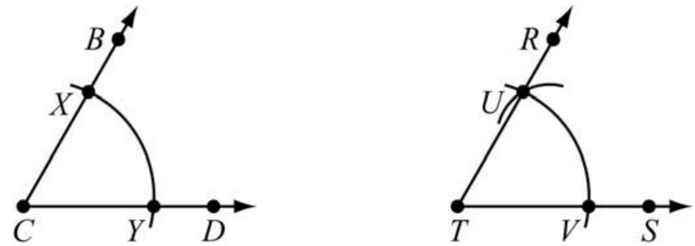
Place the point of a compass on point *C*. Draw an arc. Label the intersection points *X* and *Y*. Keep the compass width the same, and place the point of the compass on point *T*. Draw an arc and label the intersection point *V*.



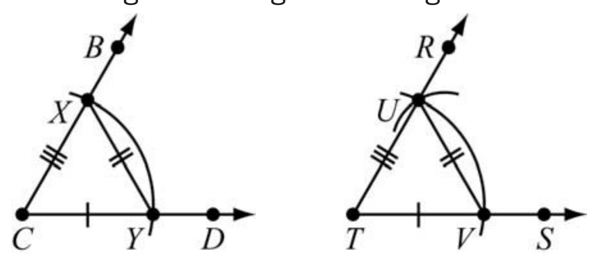
Place the point of the compass on point *Y* and adjust the width to point *X*. Then place the point of the compass on point *V* and draw an arc that intersects the first arc. Label the intersection point *U*.



Draw $\overrightarrow{TU}$ and point *R* on $\overrightarrow{TU}$. Angle *BCD* has now been copied to form angle *RTS*.



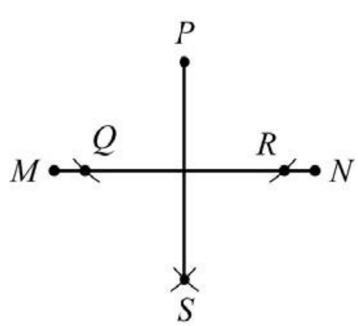
b. Connect points *X* and *Y* and points *U* and *V* to form $\triangle XCY$ and $\triangle UTV$. $\overline{CY}$ and $\overline{TV}$, $\overline{XY}$ and $\overline{UV}$, and $\overline{CX}$ and $\overline{TU}$ are congruent because they were drawn with the same compass width. So, $\triangle XCY \cong \triangle UTV$ by SSS, and $\angle C \cong \angle T$ because congruent parts of congruent triangles are congruent.



2. Construct a line segment perpendicular to $\overline{MN}$ from a point not on $\overline{MN}$. Explain the steps you used to make your construction.

Solution:

Draw a point *P* that is not on $\overline{MN}$. Place the compass point on point *P*. Draw an arc that intersects $\overline{MN}$ at two points. Label the intersections points *Q* and *R*. Without changing the width of the compass, place the compass on point *Q* and draw an arc under $\overline{MN}$. Place the compass on point *R* and draw another arc under $\overline{MN}$. Label the intersection point *S*. Draw $\overline{PS}$. Segment *PS* is perpendicular to and bisects $\overline{MN}$.



3. Construct equilateral $\triangle HIJ$ inscribed in circle K. Explain the steps you used to make your construction.

Solution:

(This is an alternate method from the method shown in Key Idea 7.) Draw circle K. Draw segment $\overline{FG}$ through the center of circle K. Label the points where $\overline{FG}$ intersects circle K as points I and P. Using the compass setting you used when drawing the circle, place a compass on point P and draw an arc passing through point K. Label the points where the arc intersects circle K as points H and J. Draw $\overline{HJ}$, $\overline{IJ}$, and $\overline{HI}$. Triangle HIJ is an equilateral triangle inscribed in circle K.