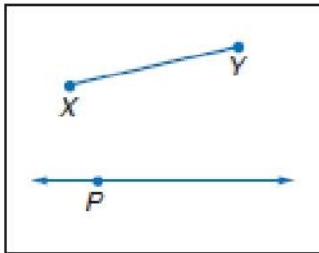Steps for copying a segment (TB 16):
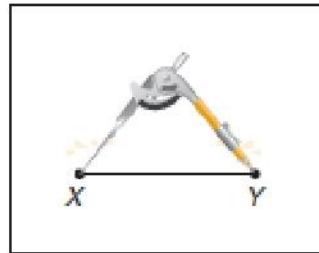Copying a segment consists of making _____ segments.

Copy a Segment

Step 1 Draw a segment $\overline{XY}$. Elsewhere on your paper, draw a line and a point on the line. Label the point P.

Step 2 Place the compass at point X and adjust the compass setting so that the pencil is at point Y.

Step 3 Using that setting, place the compass point at P and draw an arc that intersects the line. Label the point of intersection Q. Because of identical compass settings, $\overline{PQ} \cong \overline{XY}$.
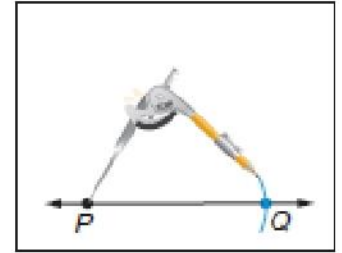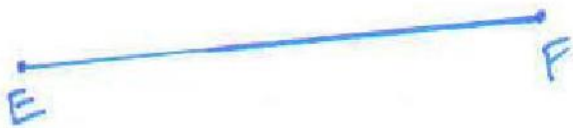
2. Copy a segment:
Copy $\overline{AB}$ at C.
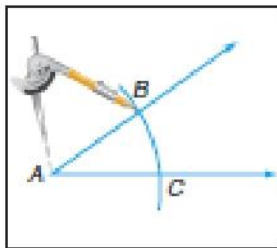
Copy $\overline{EF}$ twice at G to double $\overline{EF}$

Steps for bisecting an angle (TB 35):

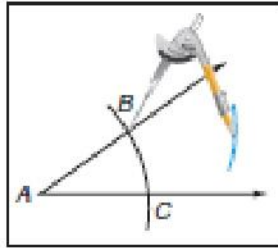Bisecting an angle consists of _____ an angle in half. Both halves are _____.

Bisect an Angle

Step 1
Draw an angle and label the vertex as *A*. Put your compass at point *A* and draw a large arc that intersects both sides of ∠*A*. Label the points of intersection *B* and *C*.
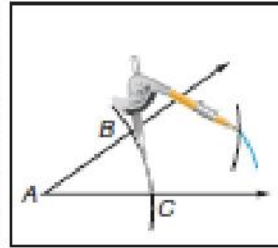
Step 2
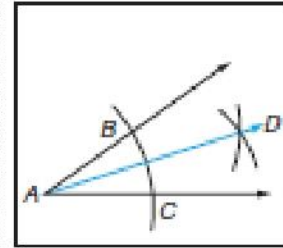With the compass at point *B*, draw an arc in the interior of the angle.

Step 3
Keeping the same compass setting, place the compass at point *C* and draw an arc that intersects the arc drawn in Step 2.
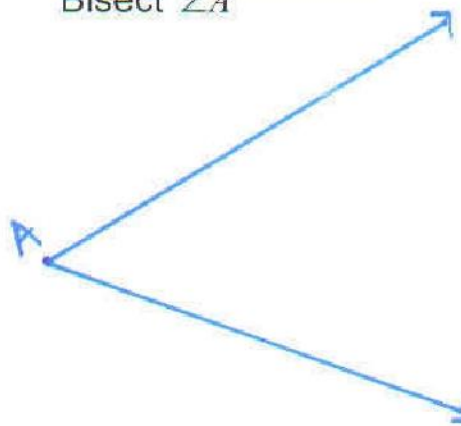
Step 4
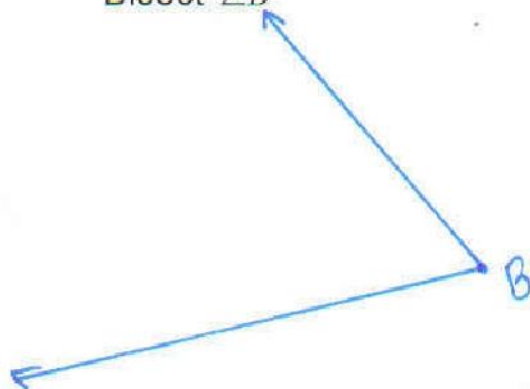Label the point of intersection *D*. Draw $\overrightarrow{AD}$. $\overrightarrow{AD}$ is the bisector of ∠*A*. Thus, $m\angle BAD = m\angle DAC$ and ∠*BAD* ≅ ∠*DAC*.
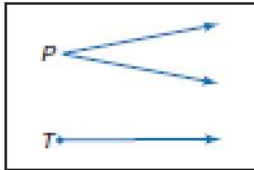
Bisect ∠*A*

Bisect ∠*B*

Steps for copying an angle (TB 33)

Copying an angle consists of making two _____ angles.

Copy an Angle
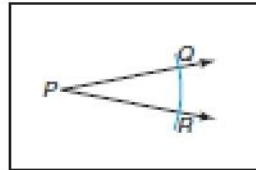
Step 1
Draw an angle like ∠P on your paper. Use a straightedge to draw a ray on your paper. Label its endpoint T.
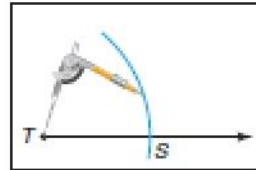
Step 2
Place the tip of the compass at point P and draw a large arc that intersects both sides of ∠P. Label the points of intersection Q and R.
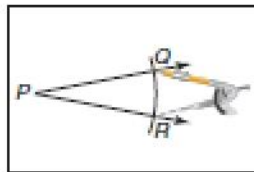
Step 3
Using the same compass setting, put the compass at T and draw a large arc that intersects the ray. Label the point of intersection S.
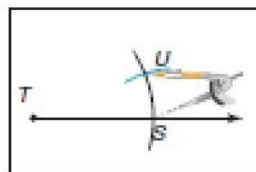
Step 4
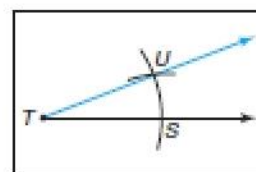Place the point of your compass on R and adjust so that the pencil tip is on Q.

Step 5
Without changing the setting, place the compass at S and draw an arc to intersect the larger arc you drew in Step 3. Label the point of intersection U.
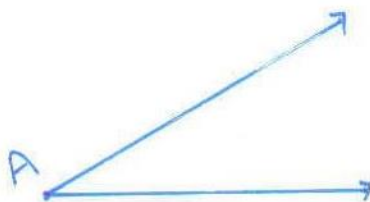
Step 6
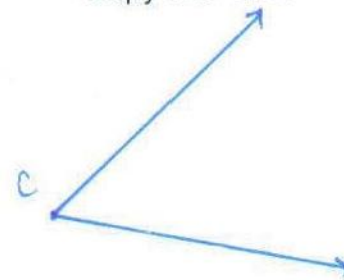Use a straightedge to draw $\overrightarrow{TU}$.

3. Copy an angle:
   Copy ∠A at B

   Copy ∠C at D

Parallel lines are lines that are going the same direction and never _____ because they have the same slope.

Steps for constructing parallel lines using the <u>angle copy method</u>
Start with a line PO and a point R off the line.
1. Draw a transverse line through R and across the line PQ at an angle, forming the point J where it intersects the line PO. The exact angle is not important.
2. With the compasses' width set to about half the distance between R and J, place the point on J, and draw an arc across both lines.
3. Without adjusting the compasses' width, move the compasses to R and draw a similar arc to the one in step 2.
4. Set compasses' width to the distance where the lower arc crosses the two lines.
5. Move the compasses to where the upper arc crosses the transverse line and draw an arc across the upper arc, forming point S.
6. Draw a straight line through points R and S.
Done. The line RS is parallel to the line PQ.