

CONSTRUCTION WORK
 (YOU MUST SHOW CONSTRUCTION MARKS!)

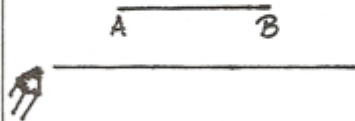
COPIED LINE SEGMENT

Objective: Copy line segment \overline{AB}



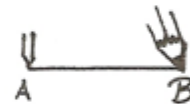
STEP 1

Draw a segment longer than \overline{AB} using a straight edge.



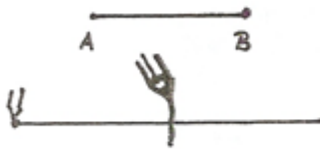
STEP 2

Place the point of the compass on point A . Stretch the compass so that the pencil is exactly on B .



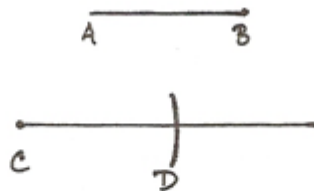
STEP 3

Without changing the span of the compass, place the compass point on the starting point on the reference line and swing the pencil so that it crosses the reference line.



STEP 4

Label your copy (\overline{CD}). Your copy and line segment \overline{AB} are congruent (equal in length). $\overline{CD} \cong \overline{AB}$.



PRACTICE

1) Copy segment \overline{MN} .



PRACTICE

2) Copy segment.



3) Copy segment \overline{PQ} .

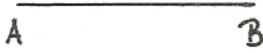


4) Copy segment \overline{XY} .



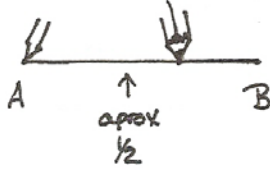
MID POINT / BISECTOR / PERPENDICULAR BISECTOR.

Objective: Divide \overline{AB} into two congruent segments.



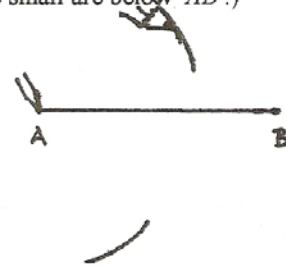
STEP 1

Place your compass point on A and stretch the compass MORE THAN half way to point B .



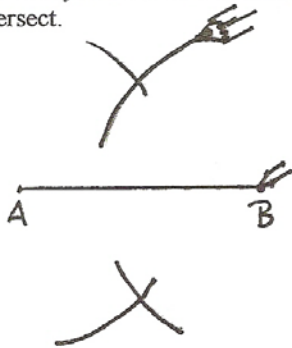
STEP 2

With this length, swing a large arc that will go BOTH above and below segment \overline{AB} . (If you do not wish to make a "large" arc, you may simply place one small arc above \overline{AB} and one small arc below \overline{AB} .)



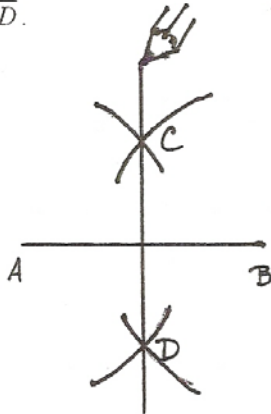
STEP 3

Without changing the span on the compass, place the compass point on B and swing the arc again. The two arcs you have now made should intersect.



STEP 4

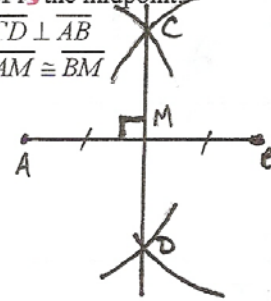
With your straightedge, connect the two points of intersection, label \overline{CD} .



STEP 5

This new straight line bisects segment \overline{AB} . Label the point where \overline{CD} and \overline{AB} cross as M (midpoint).

M is the midpoint.
 $\overline{CD} \perp \overline{AB}$
 $\overline{AM} \cong \overline{BM}$



PRACTICE

1) Construct Perpendicular bisector of \overline{AB} and label the midpoint.



2) Construct perpendicular bisector of \overline{JK} and label the midpoint.

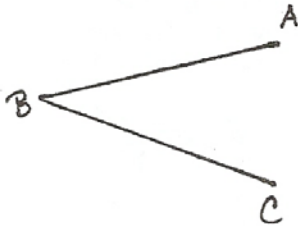


3) Construct perpendicular bisector of \overline{PQ} and label midpoint.



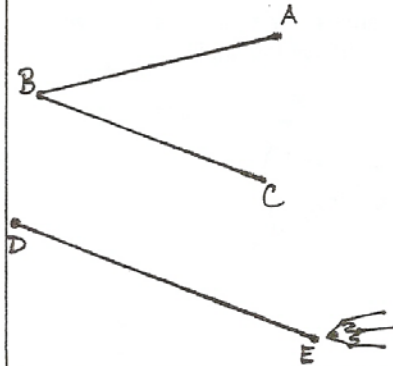
COPY AN ANGLE

Objective: Construct an angle \cong to $\angle ABC$.



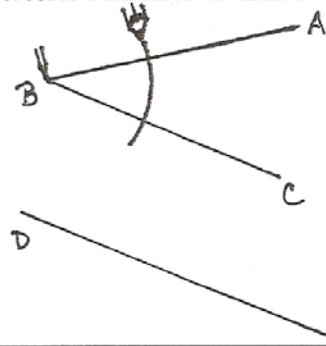
STEP 1

If a reference line does not already exist, draw a ray (DE) with your straightedge upon which you will make your construction. Place a starting point at D on the ray.



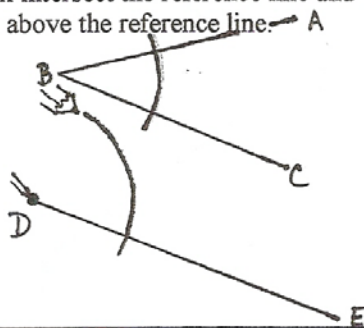
STEP 2

Place the point of the compass on the vertex of $\angle ABC$ (point B). Stretch the compass to any length so long as it stays ON the angle. Swing an arc with the pencil that crosses both sides of $\angle ABC$.



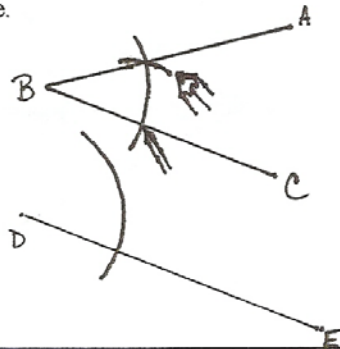
STEP 3

Without changing the span of the compass, place the compass point on the starting point (D) of the reference line and swing an arc that will intersect the reference line and go above the reference line.



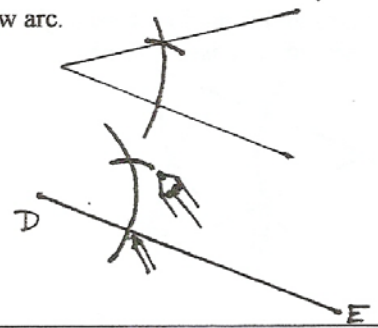
STEP 4

Go back to $\angle ABC$ and measure the width (span) of the arc from where it crosses one side of the angle to where it crosses the other side of the angle.



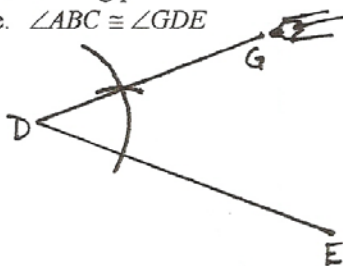
STEP 5

With this width, place the compass point on the reference line where your new arc crosses the reference line and mark off this width on your new arc.



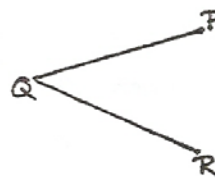
STEP 6

Connect this new intersection point to the starting point on the reference line. $\angle ABC \cong \angle GDE$

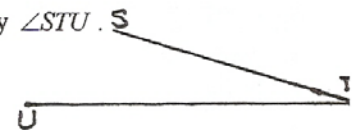


PRACTICE

1) Copy $\angle PQR$.

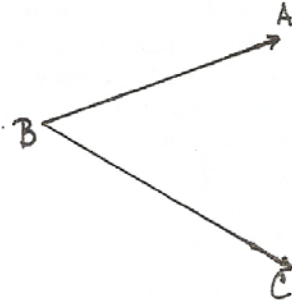


2) Copy $\angle STU$.



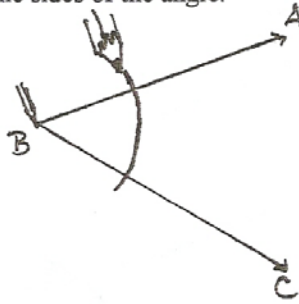
BISECT AN ANGLE

Objective: Divide $\angle ABC$ into two congruent angles.



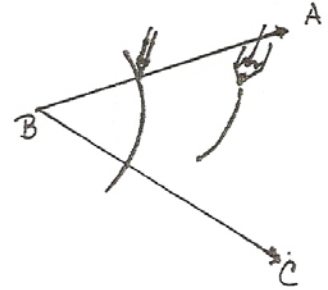
STEP 1

Place the point of the compass on the vertex of $\angle ABC$ (point B). Stretch the compass to any length so long as it stays ON the angle. Swing an arc with the pencil that crosses both sides of $\angle ABC$. This will create two intersection points with the sides of the angle.



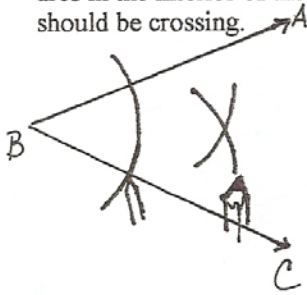
STEP 2

Place the point on one of these intersection points created on the sides of the $\angle ABC$. If needed, stretch your compass to a sufficient length to place your pencil well into the interior of the angle. Stay between the sides (rays) of the angle. Place an arc in this interior.



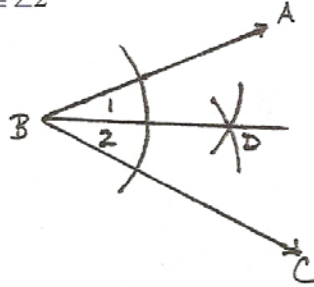
STEP 3

Without changing the width of the compass, place the point of the compass on the other intersection point on the side of the angle and make the same arc. Your two small arcs in the interior of the angle should be crossing.



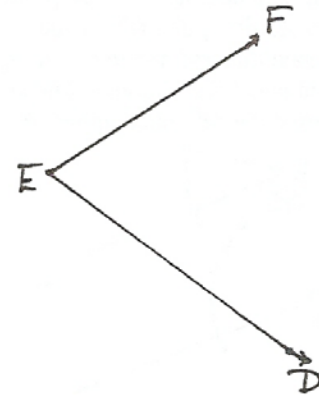
STEP 4

Connect the point where the two small arcs cross (D) to the vertex B of the angle. \overline{BD} bisects $\angle ABC$. $\angle 1 \cong \angle 2$



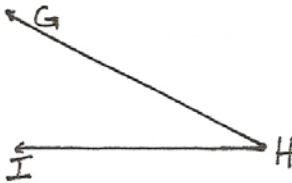
PRACTICE

1) Bisect $\angle DEF$.

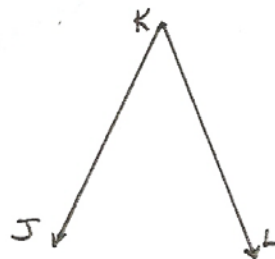


PRACTICE

2) Bisect $\angle GHI$.



3) Bisect $\angle JKL$.



4) Bisect $\angle MNP$.

