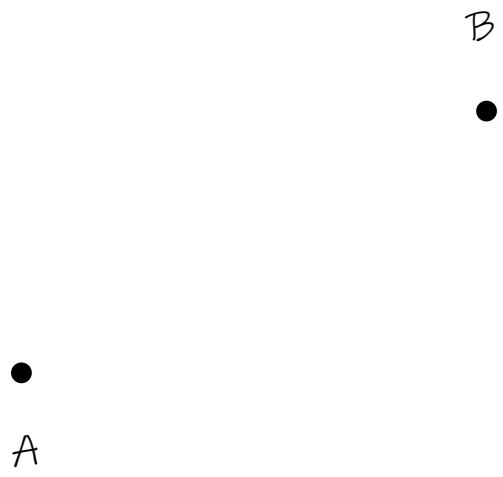
Construct a line through two given points

- Begin with two points A and B.
- Align your ruler so that your pencil line will pass through both points. Follow these tips for using a ruler as a straight-edge:
    - Always pull the pencil lead, never push
    - Do not use the scale of your ruler when performing constructions.
- Draw a line through the two points. Be sure to indicate that the line continues infinitely by drawing arrowheads at each end of what you have drawn.



Construct a circle (or arc) with a given radius and center

- Begin with a center point C and a line segment AB whose length AB is equal to the desired radius. Follow these tips for using a compass:
    - Make sure that the point of your compass is even with the tip of the pencil lead. Keep your pencil sharp!
    - Hold your compass with thumb and forefinger and pull the lead lightly, never push.
    - Do not use the scale of your compass when performing constructions.
- Place the point of the compass on one endpoint of line segment AB and set the compass to the correct distance by drawing a light arc at the other endpoint.
- Without changing the compass setting, move the point of the compass to center point C. Make a light circle or arc first, then trace back over it to make it darker.

Construct a copy of a (congruent) line segment

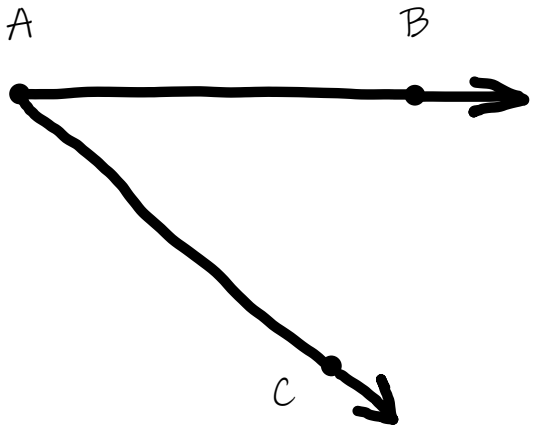
- Begin with a line segment AB and a ray with initial point E onto which you want to copy the line segment.
- Construct an arc with center E and radius AB so that it intersects the ray. Label the point of intersection F. Make a heavy line between E and F. EF has the same length as AB. (EF = AB.)

Construct a segment bisector

- Begin with a line segment AB.
- Place the point of the compass at point A. Adjust the compass radius so that it is more than half the distance between point A and point B. Using this distance as the radius, draw a long arc with center at point A.
- Without changing the compass setting, place the point of the compass on point B. Draw a second long arc with the same radius as the first and center at B so that it intersects the first arc in two places.
    - Label the points where the two arcs intersect C and D
- Construct the line through C and D. Line CD is the bisector between A and B, or line CD is the bisector of segment AB. (CD bisects AB.)

Construct a copy of a (congruent) angle

- Begin with angle BAC
- Let the point P be the vertex of the new angle.
- From point P, draw ray PQ which forms one side of the new angle.
- Place the compass on point A and draw an arc across both sides of angle BAC, creating the points J and K
- Without changing the compasses' width, place the compasses' point on P and draw a similar arc there, creating point M on ray PQ.
- Set the compasses on K and adjust its width to point J. Without changing the compasses' width, move the compasses to M and draw an arc to intersect the arc you drew from point P, creating point L where they cross.
- Draw a ray PR from P through L



Construct an angle bisector

- Begin with angle ABC
- Place the compass at the vertex B and draw an ac to intersect both rays of angle ABC.
- Place the compass on the arc crossed one leg and draw an arc in the interior of the angle. Without changing the compass setting repeat for the other leg so the two arcs cross.
- Use a straightedge to draw a ray from point B through the intersection of the two arcs that you just drew – this is the angle bisector.