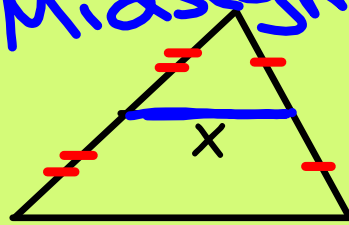


# 11/18/19 - Warm Up Problem

Find the value of x for each triangle.

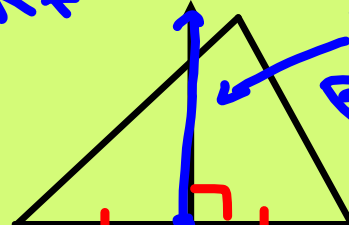
Midsegment



22

11

Perp. Bisector

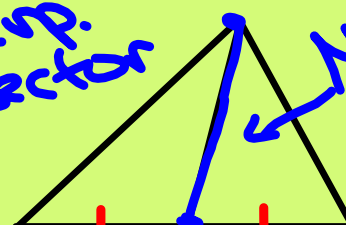


$2x-4$  12

8

$$2x-4=12$$

Median

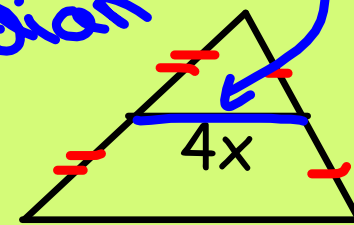


$3x-4$   $2x+6$

10

$$3x-4=2x+6$$

Midsegment



24

3

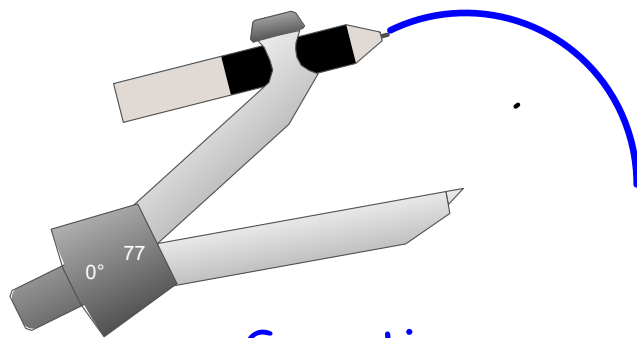
$$4x=12$$

# Concept 12 - Geometric Constructions

**Goal:** Draw angle and perpendicular bisectors using compass and straight-edge construction techniques

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**ARC:** part of the outside edge of a circle

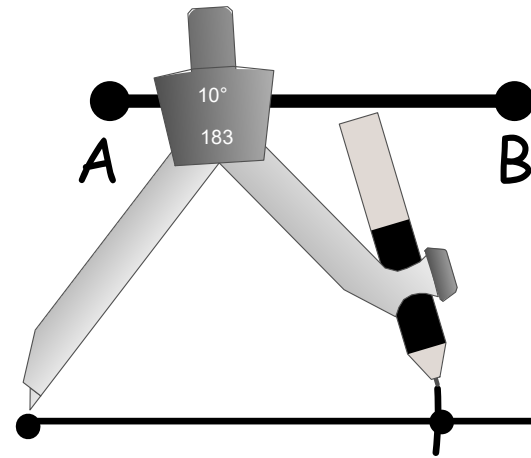


A lot of the steps in constructions ask you to only make an arc instead of a whole circle to keep your drawing free of marks you don't need.

Sometimes you will need to make several arcs with the same compass setting in one drawing.

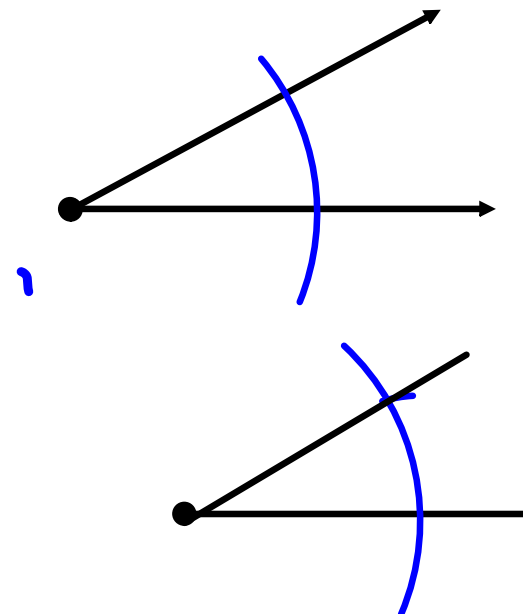
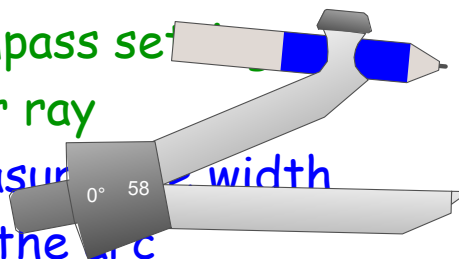
## Copy a Segment (make a congruent segment)

1. Draw a ray
2. Open compass the length of  $AB$
3. Use compass to mark length on ray
4. Draw in other endpoint



## Copy an Angle (make a congruent angle)

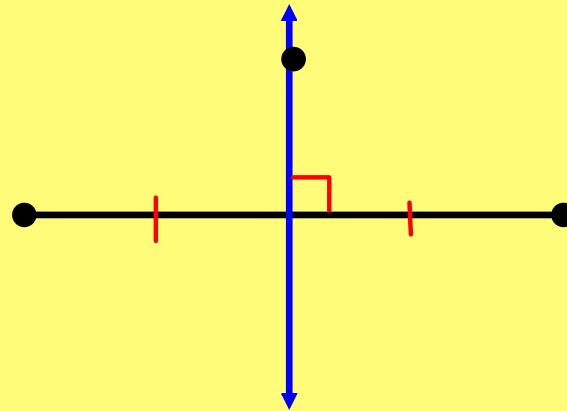
1. Draw a ray
2. With compass point on vertex, draw an arc that intersects both sides of the angle
3. With the same compass setting draw an arc on your ray
4. Use compass to measure width of the angle where the arc intersects it. Mark the same width on your ray.
5. Draw in the other side of the angle.



Complete the theorem from Concept 11:

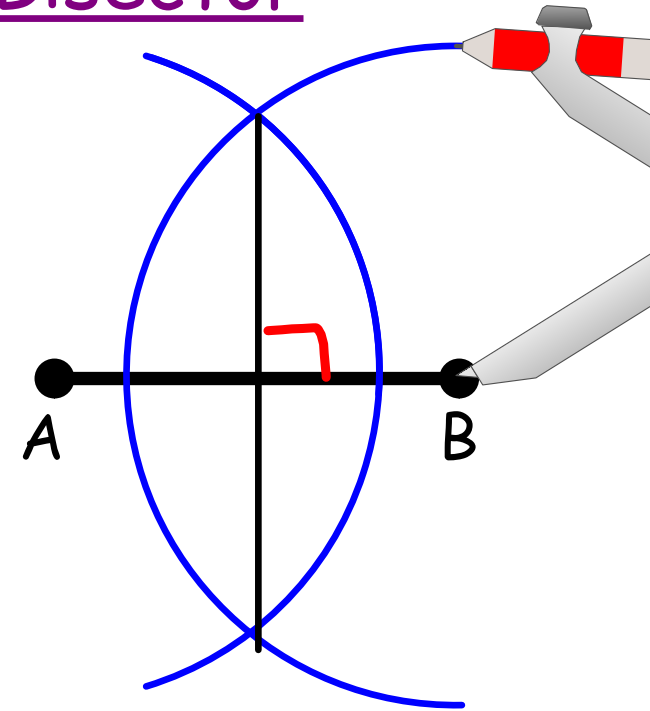
Perpendicular Bisector Theorem

If a point is on the perpendicular bisector of a segment,  
then it is \_\_\_\_\_ from the endpoints.



## Construct the Perpendicular Bisector

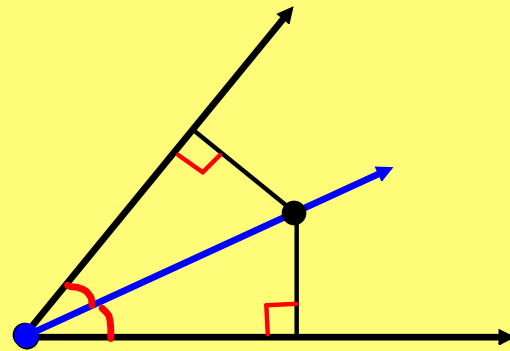
1. Put the compass point on A and open the compass to wider than half of AB. Draw a long arc through AB.
2. With the same compass setting, put the compass point on B, and draw another long arc through AB.
3. The arcs intersect in two points. Connect those two points with a line.



Complete the theorem from Concept 11:

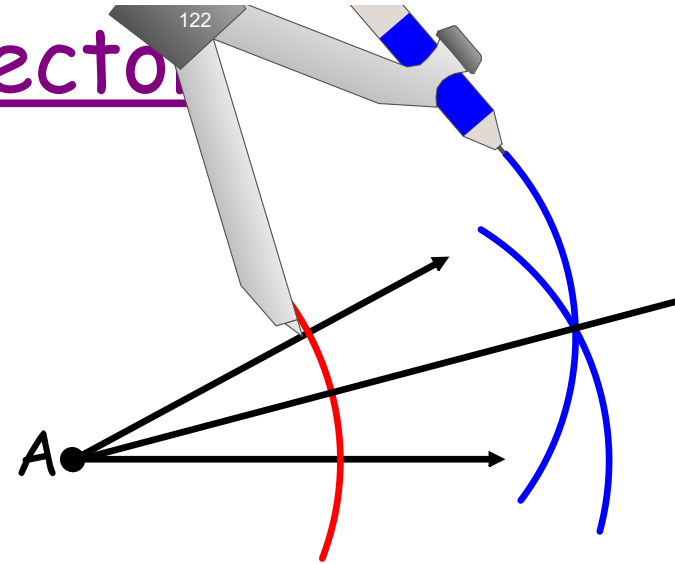
Angle Bisector Theorem

If a point is on the bisector of an angle, then the point is \_\_\_\_\_ from the sides of the angle.



# Construct the Angle Bisector

1. With compass point on  $A$ , draw an arc that intersects both sides of the angle. Label intersection points  $B$  and  $C$ .
2. Put compass point on  $B$ . Draw an arc on the interior of the angle. With same setting, put compass point on  $C$  and draw an arc that intersects first arc.
3. Connect  $A$  to the intersection point of two arcs.





**Assignment:**

Do the practice problems on the back.

- This paper is your notes. Staple it onto your note-taking guide when you are done.