

CONSTRUCTION NOTES – ANGLE AND PERPENDICULAR BISECTORS

CONSTRUCTION – a drawing made with only two tools:

1) Compass: to construct \odot 's and arcs



2) Straight edge: to draw lines or rays
 NOT a ruler - NO markings/measurements

Constructions are like puzzles, where you must properly complete a diagram in a logical progression of steps, using only really simple tools!

Shorthand Notation for Constructions

$\odot(P, PB)$ - represents a circle with center P and radius of length PB

arc (P, PB) – represents an arc with center P and radius of length PB

CONSTRUCTION #1 – ANGLE BISECTION

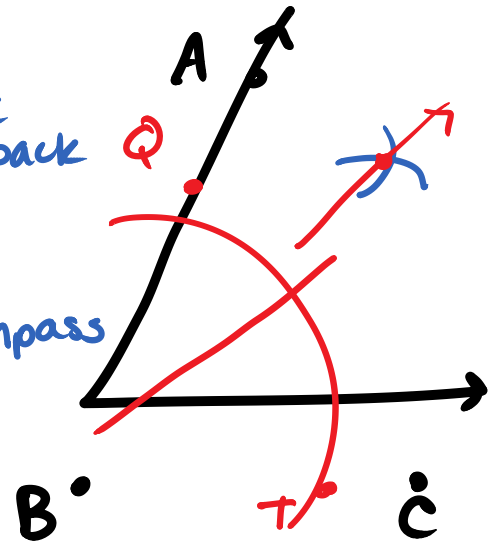
****Construction of a bisector of a given angle.****

Given: $\angle ABC$

Construct: \overrightarrow{BP} , the bisector of $\angle ABC$

Procedure:

- 1) Construct arc (B, r) intersecting $\angle ABC$ at Q, T *one arc
* Don't go back & forth
- 2) Construct arc (T, s) and (Q, s) intersecting at P. DO NOT move compass
- 3) Draw \overrightarrow{BP}
- 4) \overrightarrow{BP} bisects $\angle ABC$



Note – Do not erase any arc marks in any construction problem! Leave all the marks that are needed to create the drawing!

CONSTRUCTION #2 - PERPENDICULAR BISECTOR → use directions for midpoint

****Construction of the perpendicular bisector of a given line segment.****

Given: \overline{AB}

Construct: \overline{PQ} , the \perp bisector of \overline{AB}

Procedure:

DON'T change compass

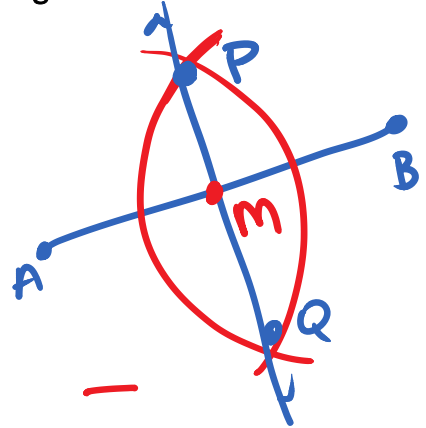
1) Construct arc (A, r)
* bigger than $\frac{1}{2} AB$
Construct arc $(B, r) \rightarrow$

2) intersecting arc (A, r) above & below AB @ P & Q
Draw \overline{PQ}

3)

4) $\overleftrightarrow{PQ} \perp$ bisects \overline{AB}

M is midpoint - $\overline{AM} \cong \overline{MB}$



LET'S PRACTICE *only if time OR if sts want a challenge.

1. Construct a 45 degree angle.

- Draw \perp bisector
- Bisect one of the right \angle 's.

2. Find the midpoint of each side of the triangle below.

\perp bisect all 3 sides

