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## 14.4. Honors Geometry

Target 1A. Use tools and methods to perform basic geometric constructions

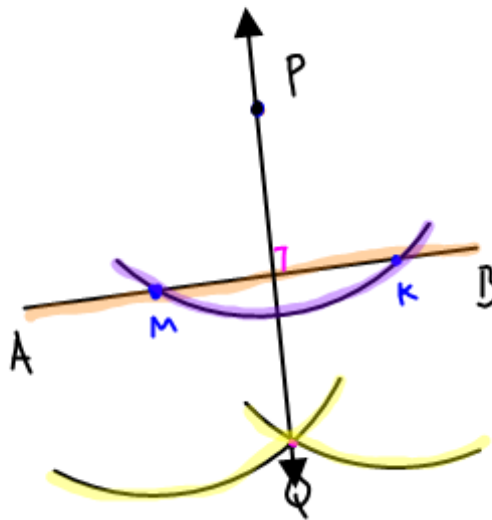
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**Construction 5: Construct a line perpendicular to the given segment through the given point**

Given:  $\overline{AB}$  with point P not on  $\overline{AB}$

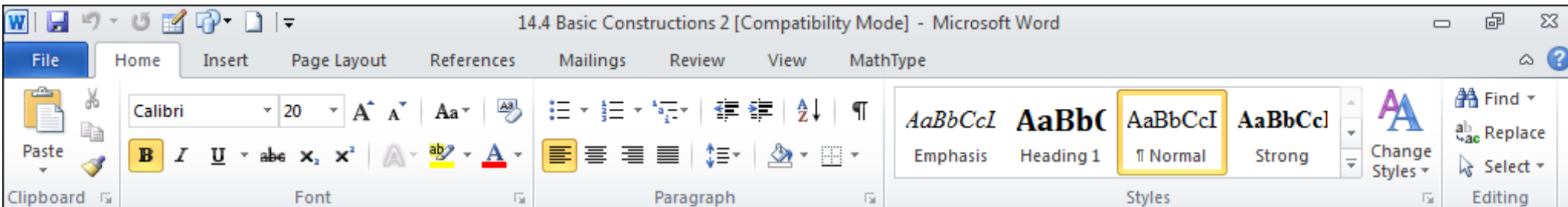
Construct:  $\overline{PQ} \perp \overline{AB}$

$\therefore \overleftrightarrow{PQ} \perp \overline{AB} \Rightarrow \text{rt. } \angle$



- ① Place compass on P and adjust past segment AB. Make the arcs and you will make pts M and K.
- ② Place compass on P and adjust it to width  $\overline{PM}$ .
- ③ Place compass on M and then K. Make the arcs. Pt Q will be made. Connect P and Q.

**Construction 6: Construct a line through the given point parallel to the given line segment**

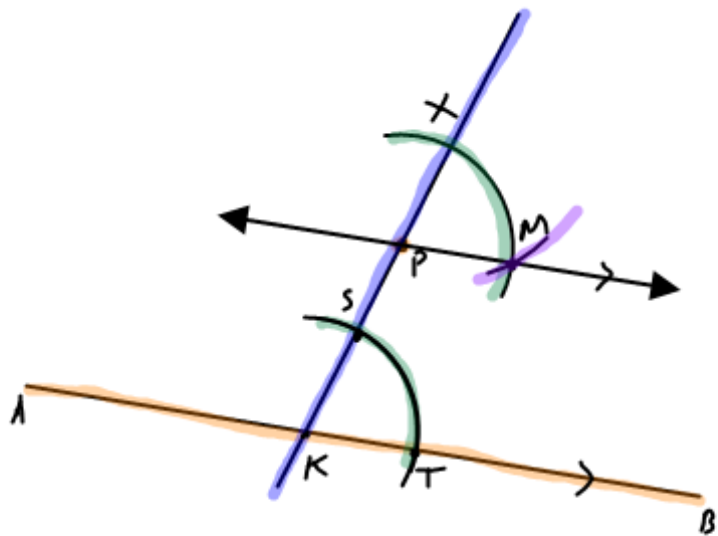


**Construction 6: Construct a line through the given point parallel to the given line segment**

Given:  $\overline{AB}$  with point P not on  $\overline{AB}$

Construct:  $\overline{PQ} \parallel \overline{AB}$

$\therefore \overleftrightarrow{PQ} \parallel \overleftrightarrow{AB}$



- ① Draw a segment through P intersecting past  $\overline{AB}$  at K. → with straight edge
- ② Copy the angle  $\angle PKB$ . Adjust compass to desired width by placing it at K first. make the arc. You have created pt. S and T. Now, with same compass width, make the same arc starting at P.
- ③ Now adjust compass to width ST and place compass at X. Make the arc, intersecting at M. Connect P and M.

Done !!