

Geometry 1.5

Identify and use special pairs of angles

Identify perpendicular lines

Interpret diagrams

Construct perpendiculars

adjacent angles

linear pair

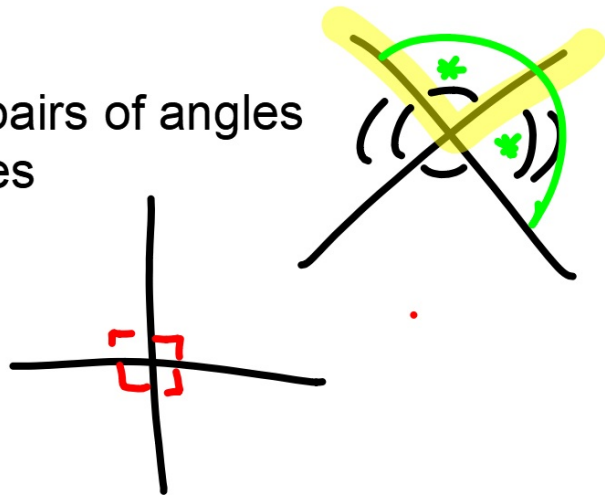
vertical angles

~~90~~ complementary angles

~~180~~ supplementary angles

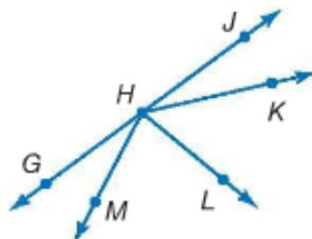
perpendicular 90°

assumptions



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KeyConcept Interpreting Diagrams	
CAN be Assumed	CANNOT be Assumed
All points shown are coplanar. G, H, and J are collinear. $\overrightarrow{HM}$, $\overrightarrow{HL}$, $\overrightarrow{HK}$, and $\overrightarrow{GJ}$ intersect at H. H is between G and J. L is in the interior of $\angle MHK$. $\angle GHM$ and $\angle MHL$ are adjacent angles. $\angle GHL$ and $\angle LHJ$ are a linear pair. $\angle JHK$ and $\angle KHG$ are supplementary.	Perpendicular lines: $\overrightarrow{HM} \perp \overrightarrow{HL}$ Congruent angles: $\angle JHK \cong \angle GHM$ $\angle JHK \cong \angle KHL$ $\angle KHL \cong \angle LHM$ Congruent segments: $\overline{GH} \cong \overline{HJ}$ $\overline{HJ} \cong \overline{HK}$ $\overline{HK} \cong \overline{HL}$ $\overline{HL} \cong \overline{HG}$



The list of statements that can be assumed is not a complete list.

There are more special pairs of angles than those listed.

OK to assume: order, relationships **position**
 NOT OK to assume: lengths, angles, congruence

At a specific point on the line...

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Mathematical Practices 3



Activity Construct a Perpendicular

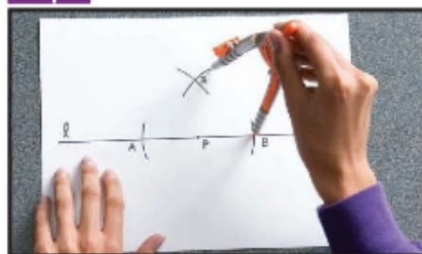
a. Construct a line perpendicular to line ℓ and passing through point P on ℓ .

Step 1



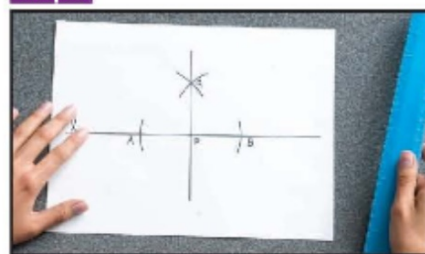
Place the compass at P . Draw arcs to the right and left of P that intersect line ℓ using the same compass setting. Label the points of intersection A and B .

Step 2



With the compass at A , draw an arc above line ℓ using a setting greater than AP . Using the same compass setting, draw an arc from B that intersects the previous arc. Label the intersection Q .

Step 3

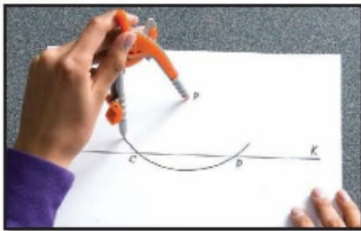


Use a straightedge to draw $\overleftrightarrow{QP}$.

Through a specific point not on the line...

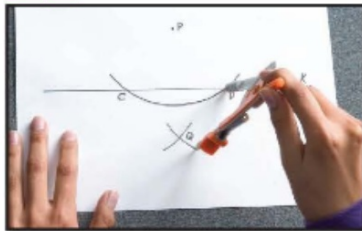
b. Construct a line perpendicular to line ℓ and passing through point P not on ℓ .

Step 1



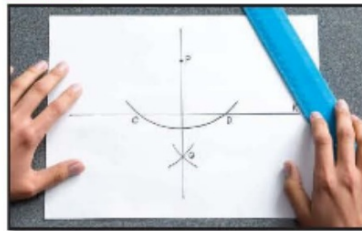
Place the compass at P . Draw an arc that intersects line ℓ in two different places. Label the points of intersection C and D .

Step 2



With the compass at C , draw an arc below line ℓ using a setting greater than $\frac{1}{2}CD$. Using the same compass setting, draw an arc from D that intersects the previous arc. Label the intersection Q .

Step 3



Use a straightedge to draw $\overleftrightarrow{PQ}$.

Practice WS

Do not measure the angles

Use what you know about linear
pairs, perpendicular lines, etc.

WS due today
ET due today
WB 1.5 pr. (p. 10) due Wed.