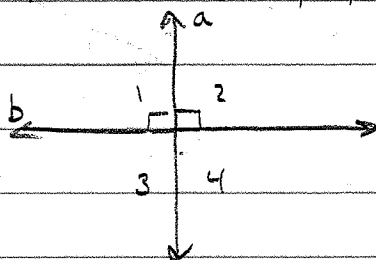


3.6 Perpendicular Lines

If 2 lines intersect to form a congruent linear pair, then the lines are perpendicular.



$$\angle 1 \cong \angle 2$$

$$\angle 1 + \angle 2 = 180^\circ$$

Note: $\angle 2 \cong \angle 3$, so $\angle 3 = 90^\circ$

$$\angle 1 \cong \angle 4, \text{ so } \angle 4 = 90^\circ$$

If 2 lines intersect to form perpendicular lines, then there are FOUR 90° angles.

Example

List the four sets of linear pairs

1) $\angle 1 \& \angle 2$

2) $\angle 2 \& \angle 3$

3) $\angle 3 \& \angle 4$

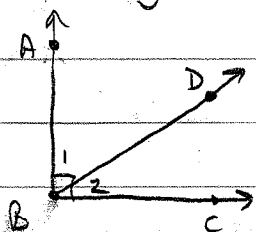
4) $\angle 1 \& \angle 3$

Write a congruence statement about those angles

$$\angle 1 \cong \angle 2 \cong \angle 3 \cong \angle 4 \quad (\text{all are } 90^\circ \text{ angles})$$

(share \overline{BD}) (under 90°)

If 2 sides of 2 adjacent acute angles are perpendicular, then the angles are complementary (2 angles sum to 90°)



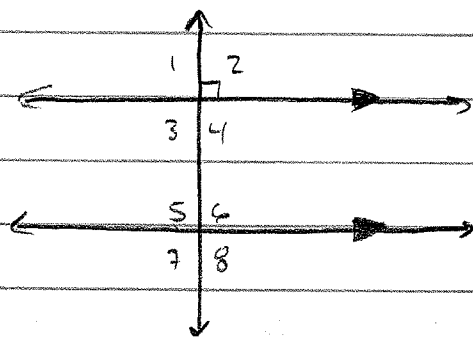
Make 2 statements about $\angle 1$ & $\angle 2$

- 1) $\angle 1$ & $\angle 2$ are supplementary
- 2) $\angle 1$ & $\angle 2$ are adjacent angles

If $m\angle 1 = 32^\circ$, what is $m\angle 2$?

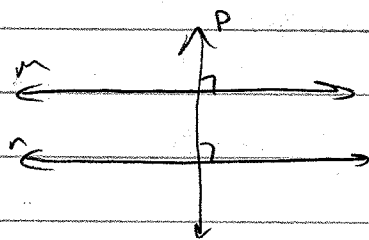
$$70 - 32 = \textcircled{58^\circ}$$

(line)
If a transversal is perpendicular to one of two parallel lines, then it is perpendicular to the other.



$\angle 1, \angle 2, \angle 3$ & $\angle 4 = 90^\circ$ because \perp
 $\angle 2 \cong \angle 6$, $\angle 4 \cong \angle 8$, $\angle 1 \cong \angle 5$, $\angle 3 \cong \angle 7$ corresp \angle s
(or other alt int/ext)

If 2 lines are perpendicular to the same transversal, those lines are parallel



$p \perp m$ & $p \perp n$, therefore $m \parallel n$

pp4: 2-8, 10, 15-17, 26