

Points, lines, angles

① Point (a dot) - no length, thickness or size.

② Line  AB | Connects 2 points.
Extends infinitely in both directions.

③ Plane | Flat surface, no thickness,
Extends infinitely in all directions.

④ Half line



Half line AB

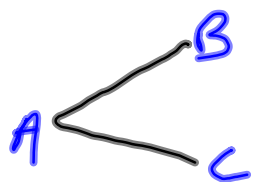
A is not included in AB

⑤ Ray \overrightarrow{AB} | A half line that includes the endpoint.

⑥ Line segment \overline{AB} - a portion of a line

Angles

Angle 2 rays with a common endpoint (vertex). Angles are measured in degrees.



$\angle A$, $\angle BAC$, $\angle CAB$

Types of angles:

- Ⓐ acute: $0^\circ < x < 90^\circ$
- Ⓑ right: $x = 90^\circ$
- Ⓒ obtuse: $90^\circ < x < 180^\circ$
- Ⓓ straight: $x = 180^\circ$

Complementary angles

Two angles whose measures add to 90°

Supplementary Angles two angles whose measures add to 180° .

Example: $\angle A$ is 15° more than twice the measure of $\angle B$. $\angle A$ and $\angle B$ are complementary. What are the measures of $\angle A$ and $\angle B$?

$$\angle A + \angle B = 90^\circ$$

$$\angle A = 15 + 2B$$

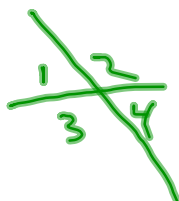
$$(15 + 2B) + B = 90$$

$$3B + 15 = 90$$

$$3B = 75$$

$$\boxed{B = 25 \quad A = 65}$$

Vertical Angles / Opposite angles formed by intersecting lines are congruent.

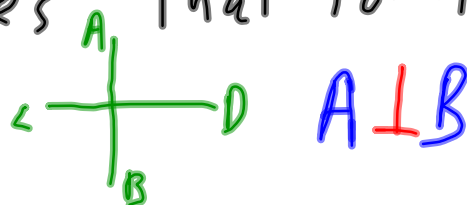


$$\angle 1 \cong \angle 4$$

$$\angle 2 \cong \angle 3$$

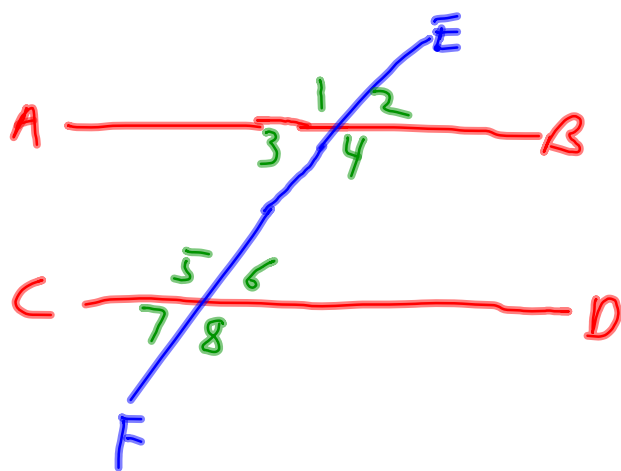
Perpendicular Lines

Intersecting lines that form right angles



Parallel Lines lie in the same plane and never intersect.

Transversal A line that intersects two parallel lines $A \parallel B$



\overleftrightarrow{EF} is transversal

Vertical angles:

$$\angle 1 \cong \angle 4, \angle 2 \cong \angle 3, \angle 5 \cong \angle 8, \angle 6 \cong \angle 7$$

Alternate interior angles

$$\angle 3 \cong \angle 6, \angle 4 \cong \angle 5$$

Alternate exterior angles

$$\angle 1 \cong \angle 8, \angle 2 \cong \angle 7$$

Corresponding angles

$$\angle 1 \cong \angle 5, \angle 2 \cong \angle 6, \angle 3 \cong \angle 7, \angle 4 \cong \angle 8$$

* All of the above angles are congruent

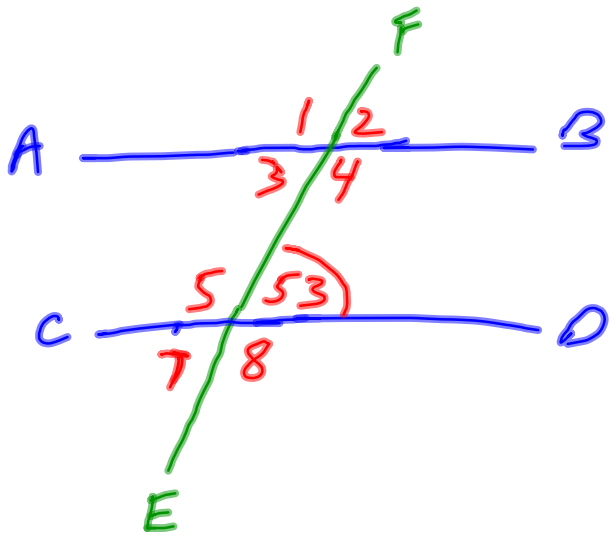
Consecutive Interior Angles

$\angle 3$ and $\angle 5$

$\angle 4$ and $\angle 6$

These angles are supplementary (add to 180°)

Do Ex 3 on p. 135



Find all missing angle measures.