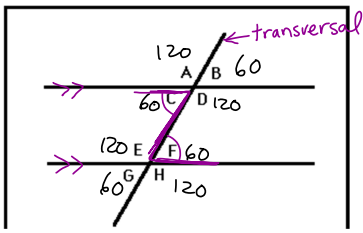


Discover Properties of Parallel Lines



- Using protractor, measure all the angles (or use angle properties you know so far once you have measured $\angle A$ and $\angle G$).
- Now let's summarize some info:
 $\angle A$ is congruent (same angle value) to
 $\angle D \quad \angle E \quad \angle H$
 $\angle G$ is congruent (same angle value) to
 $\angle F \quad \angle C \quad \angle B$
- What value do you get if you add $\angle E + \angle C$? 180°
- What value do you get if you add $\angle F + \angle D$? 180°
- How are $\angle C$ and $\angle F$ related? Can you see a letter from the alphabet in the lines connecting those angles?
 both acute, both 60°

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In Summary:

When two parallel lines are cut by a transversal, the following is always true:

1. **Corresponding angles:** Form an **F** pattern.
 $\angle D = \angle H$ $\angle C = \angle G$
 $\angle A = \angle E$ $\angle B = \angle F$

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2. **Alternate interior angles:** Form a **Z** pattern

$\angle C = \angle F$
 $\angle E = \angle D$

Alternate exterior
 $\angle G = \angle B$
 $\angle A = \angle H$

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3. **Co-Interior angles:** Form a **C** pattern

$\angle D + \angle F = 180$
 $\angle C + \angle E = 180$

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Examples:

What are the alternate angles (I)?
 $\angle 4 = \angle 5$ $\angle 3 = \angle 6$

What are all the corresponding angles (F)?
 $\angle 4 = \angle 8$ $\angle 3 = \angle 7$
 $\angle 5 = \angle 1$ $\angle 2 = \angle 6$

What are the co-interior angles (C)?
 $\angle 4 + \angle 6 = 180$
 $\angle 3 + \angle 5 = 180$
 If $\angle 4 = 34^\circ$, $\angle 6 = 34^\circ$ (F Rule)
 If $\angle 7 = 125^\circ$, $\angle 2 = 55^\circ$ (Supp Rule)
 If $\angle 6 = 44^\circ$, $\angle 3 = 44^\circ$ (Z Rule)
 alt. interior

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