

Angles, Triangles and Parallel Lines....Oh My!



Dec 10-10:12 AM

## Types of Triangles

Scalene Triangle

- a triangle with no equal sides and no equal angles



Isosceles Triangle

- a triangle with two sides equal, and two angles equal



Equilateral Triangle

- a triangle with all sides equal, and all angles equal



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## Triangle Angles

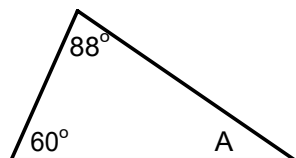
Sum of interior Angles = 180 degrees

Geometers Sketchpad Animations #1 slide



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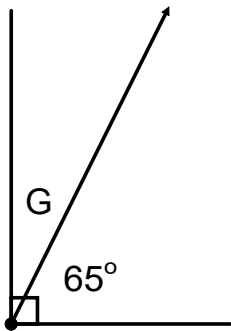
Find the missing angle in each triangle.



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Complimentary Angles - sum for 90°

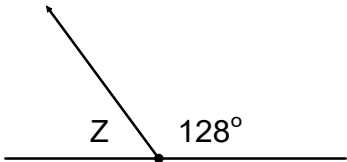
Equation Solution



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Supplimentary Angles - sum for 180°

Equation Solution



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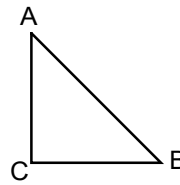
Notation for Angles and Triangles

$\triangle ABC$

$$\angle A = 30^\circ \quad \angle CAB = 30^\circ$$

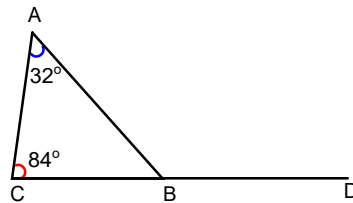
$$\angle B = \_\_ \quad \text{or} \quad \angle CBA = \_\_$$

$$\angle C = 90^\circ \quad \angle ACB = 90^\circ$$



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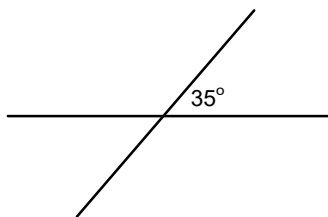
Find  $\angle ABD$  for the following triangle:



Geometers Sketchpad Animations #2 slide

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## Angles and Crossing Lines



You may also know this as the Opposite Angle Theorem.  
(OAT)

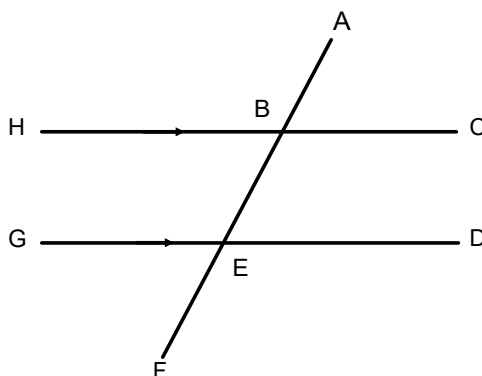
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## Parallel Lines

$$\angle HBA = 110^\circ$$

$$\angle GEF = \underline{\hspace{1cm}}$$

$$\angle DEF = \underline{\hspace{1cm}}$$



Corresponding Angles are equal. "F" pattern.

Alternate angles are equal. "Z" pattern.

The sum of the interior angles on the same side of the transversal is  $180^\circ$ .  
"C" pattern.

## Geometers Sketchpad Animations



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Find the missing angles.

Diagram showing a triangle with vertices K, A, and G. A horizontal line passes through vertex K, and another horizontal line passes through vertex A. The line through K has an arrow pointing right. The line through A has an arrow pointing right. The angle between the line through K and side KA is  $86^\circ$ . The angle between the line through K and side KG is  $124^\circ$ . The angle at vertex A is labeled A. The angle at vertex G is labeled G. The angle at vertex K is labeled K.

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Solve for "x"

Diagram showing a triangle with interior angles labeled  $(2x)$ ,  $(3x + 60^\circ)$ , and  $(5x - 30^\circ)$ . Each angle is marked with a red arc.

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## Attachments

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SPECIALQUADS.GSP

TriangleAngles.gsp

Parallel.gsp