

# Supplementary - add to 180°

## GUIDED NOTES: Geometric Properties

Important Vocabulary	Picture
Vertical Angles: <b>Across from each other</b> $\angle 1 \neq \angle 4$ , $\angle 2 \neq \angle 3$	
Linear Pair: <b>Next to each other, form a line</b> Same spot on different lines $\angle 1 + \angle 2 = 180$ , $\angle 4 + \angle 3 = 180$	
Corresponding Angles: <b>Inside // lines, opposite sides</b> $\angle 3 \neq \angle 6$ , $\angle 4 \neq \angle 5$	
Alternate Interior Angles: <b>Outside // lines, opposite sides</b> $\angle 1 \neq \angle 8$ , $\angle 2 \neq \angle 7$	
Alternate Exterior Angles: <b>Inside // lines, same side</b> $\angle 3 \neq \angle 5$ , $\angle 4 \neq \angle 6$	
Consecutive Interior Angles: <b>Outside // lines, same side</b> $\angle 1 \neq \angle 5$ , $\angle 2 \neq \angle 6$	
Consecutive Exterior Angles: $\angle 1 \neq \angle 7$ , $\angle 2 \neq \angle 8$	

EX1. Corresponding

$$\begin{array}{r}
 2x + 20 \\
 4x - 12 \\
 \hline
 4x - 12 = 2x + 20 \\
 -2x \quad -2x \\
 \hline
 2x - 12 = 20 \\
 +12 \quad +12 \\
 \hline
 2x = 32 \\
 \frac{2x}{2} = \frac{32}{2} \\
 \boxed{x = 16}
 \end{array}$$

EX3. Alternate Interior

$$\begin{array}{r}
 5x - 22 \\
 3x + 24 \\
 \hline
 5x - 22 = 3x + 24 \\
 -3x \quad -3x \\
 \hline
 2x - 22 = 24 \\
 +22 \quad +22 \\
 \hline
 2x = 46 \\
 \frac{2x}{2} = \frac{46}{2} \\
 \boxed{x = 23}
 \end{array}$$

EX2. Consecutive Interior

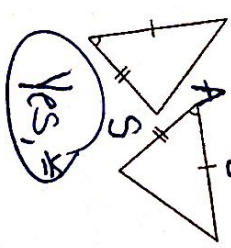
$$\begin{array}{r}
 3x - 14 \\
 61 \\
 \hline
 3x - 14 + 61 = 180 \\
 3x + 47 = 180 \\
 -47 \quad -47 \\
 \hline
 3x = 133 \\
 \frac{3x}{3} = \frac{133}{3} \\
 \boxed{x = 44.\bar{3}}
 \end{array}$$

EX4. Alternate Exterior

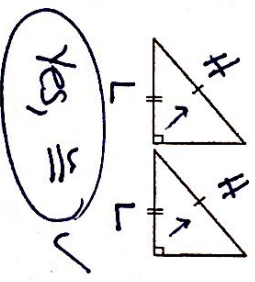
$$\begin{array}{r}
 120 \\
 4x + 28 \\
 \hline
 120 = 4x + 28 \\
 -28 \quad -28 \\
 \hline
 92 = 4x \\
 \frac{92}{4} = \frac{4x}{4} \\
 \boxed{x = 23}
 \end{array}$$

Triangle Congruence		
Name:	Picture	Definition
Angle-Side-Angle (ASA)		Two angles and the side between them of one triangle are congruent to two angles and the side between them of the other triangle
Side-Angle-Side (SAS)		Two sides and the angle between them of one triangle are congruent to two sides and the angle between them of the other triangle
Side-Side-Side (SSS)		all three sides of one triangle are congruent to all three sides of the other triangle
Angle-Angle-Side (AAS)		two angles and a side not between them of one triangle are congruent to two angles and a side not between them of the other triangle
Hypotenuse-Leg (HL)		the hypotenuse and a leg of one right triangle are congruent to the hypotenuse and a leg of the other right triangle
		<b>The Donkey Theorem:</b> You can't travel (AAA) by Donkey (SSA) to triangle congruence! 

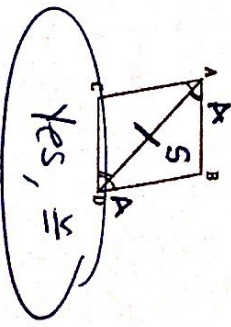
EX5.



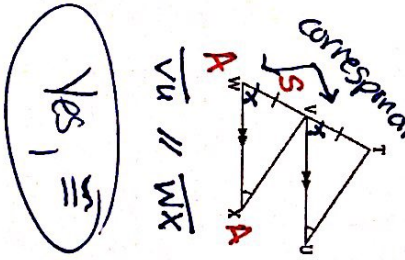
EX6.



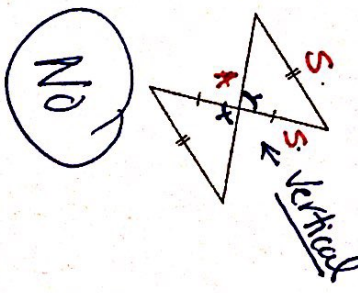
EX7.



EX8. Corresponding



EX9.



EX10.

