**Applying the Properties of Parallel Lines Cut By a Transversal**

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| **Congruent Angles** - two angles whose \_\_\_\_\_\_\_\_\_\_\_\_ are \_\_\_\_\_\_\_\_\_\_ – the angles are the same \_\_\_\_\_\_\_\_. | | **Linear Pair** – two angles whose \_\_\_\_\_\_\_\_\_\_\_\_\_ is \_\_\_\_\_\_\_\_\_° - they make a straight line therfore they are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. | |
| The measure of ∠1 = 95° and the measure of ∠4 =  4x – 5. Find x.  http://img.sparknotes.com/figures/C/cdafbce3d7fbcda5507c818a9e198ec0/transversal.gif | | The measure of ∠1 = 95° and the measure of ∠2 =  3x – 20. Find x and the measure of ∠2.  http://img.sparknotes.com/figures/C/cdafbce3d7fbcda5507c818a9e198ec0/transversal.gif | |
| 1. Ask? Are the angles congruent? \_\_\_\_\_\_\_\_\_\_\_ | m ∠1 = m∠4 | 1. Ask? Are the angles supplementary? (are the angles different sizes?) \_\_\_\_\_\_\_\_\_\_\_ | m ∠1 + m∠2 = 180° |
| 1. Set the equations = to one another and solve for x. | 1. = 4x - 5 | 1. Add the measures, set them equal to 180 and solve for x. | 1. + 3x – 20 = 180 |
| 1. Substitute x = \_\_\_\_\_\_\_in to the expression check. | 4x – 5 | 1. Substitute x = \_\_\_\_\_ in to the expression and simplify. | 3x – 20 |
| x = \_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | The measure of ∠2 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**.** | |
| *Use the figure in the right column for each example problem below. Line AB and Line CD are parallel.* | | | |
| Example 1:  The *m*1 = 107°, find the *m*5 = 5x +7. Find x. | | http://img.sparknotes.com/figures/C/cdafbce3d7fbcda5507c818a9e198ec0/transversal.gif | |
| Example 2:  ***m*4 = 120**  Find the measure of the following angles:  *m*8 = \_\_\_\_\_\_\_\_ *m*7 = \_\_\_\_\_\_\_\_  *m*3 = \_\_\_\_\_\_\_\_ *m2* = \_\_\_\_\_\_\_\_ | | http://img.sparknotes.com/figures/C/cdafbce3d7fbcda5507c818a9e198ec0/transversal.gif | |
| Example 3:  Given *m*7= 70° and the measure of8= 5x – 25, find x. | | http://img.sparknotes.com/figures/C/cdafbce3d7fbcda5507c818a9e198ec0/transversal.gif | |
| Example 4:  *m* 3 = 2*x* + 1 and *m*5 is 4*x* – 1. Find the value of *x* and the measure of 3 and 5. | | http://img.sparknotes.com/figures/C/cdafbce3d7fbcda5507c818a9e198ec0/transversal.gif | |
| Example 5:  *m*1 = x + 45° and *m*5 = 105  Find the value of x. | | http://img.sparknotes.com/figures/C/cdafbce3d7fbcda5507c818a9e198ec0/transversal.gif | |
| Example 6:  *m*3 = 4*x* and *m* *6* is 3*x* + 5. Find the value of *x* and the measure of 3 and *6*. | | http://img.sparknotes.com/figures/C/cdafbce3d7fbcda5507c818a9e198ec0/transversal.gif | |
| Example 7:  *m* 8 = 5*x* + 1 and *m*6 is 4*x* – 1. Find the value of *x* and the measure of 8 and 6. | | http://img.sparknotes.com/figures/C/cdafbce3d7fbcda5507c818a9e198ec0/transversal.gif | |