Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ March 9, 2016

Math 7R Period: \_\_\_\_\_\_

**Warm-up**

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| 1. Use the diagram below to answer each part.A. What angle is vertical to ∠3? \_\_\_\_\_\_\_\_\_B. What angle is supplementary to ∠4? \_\_\_\_\_\_\_\_C. What angle is complementary to ∠2? \_\_\_\_\_\_\_\_ | 2. Evaluate the expression 2x + 16 when x = 20.1. Rewrite the expression 2. Substitute 20 in for x.3. Solve. |



 **Learning Target:** Today, I will be able to find the measures of each angle formed

 by vertical angles, complementary angles, and supplementary angles.

**Tying it all together……**

**Directions:** Find the value of x in the figure. Then find the unknown angle measures.

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| **Example 1.** **(3x)°****(5x – 14)°**The angle relationship shown in the diagram are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ angles. Their sum is \_\_\_\_\_\_\_\_\_\_. Set up: 5x – 14 + 3x = \_\_\_\_\_\_ Solve:Substitute: **∠1 = 5x – 14 ∠2 = 3x** = 5( ) – 14 = 3( ) = \_\_\_\_\_\_ = \_\_\_\_\_\_°The measures of the two angles are \_\_\_\_\_\_\_ and \_\_\_\_\_\_. | **Where to start???????****Step 1:** Determine the angle relationship between the two angles.• Since they are complementary angles, they add up to 90 degrees. **Step 2:** Set up an equation to solve for x.  **Step 3:** Solve for x.**Step 4:** Substitute the value of x into each angle equation to get the measurement of the angles. |

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| **Example 2:****60°****(2x + 36)°**The angle relationship shown in the diagram are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ angles. They are \_\_\_\_\_\_\_\_\_\_\_\_. Set up: 2x + 36 = \_\_\_\_\_\_ Solve:Substitute: **2x + 36** **2( ) + 36** **\_\_\_\_\_\_°**  | **Where to start???????****Step 1:** Determine the angle relationship between the two angles. • Since they are vertical angles, they are congruent. **Step 2:** Set up an equation to solve for x. **Step 3:** Solve for x.**Step 4:** Substitute the value of x into each angle to get the measurement of the angle(s). |
| **Example 3:****(6x)°****(2x + 36)°**The angle relationship shown in the diagram are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ angles. Their sum is \_\_\_\_\_\_\_\_\_\_. Set up: 2x + 36 + 6x = \_\_\_\_\_\_ Solve:Substitute: **∠1 = 2x + 36 ∠2 = 6x** = 2( ) + 36 = 6( ) = \_\_\_\_\_\_ = \_\_\_\_\_\_°The measures of the two angles are \_\_\_\_\_\_\_ and \_\_\_\_\_\_. | **Where to start???????****Step 1:** Determine the angle relationship between the two angles.• Since they are supplementary angles, they add up to 180 degrees. **Step 2:** Set up an equation to solve for x.  **Step 3:** Solve for x.**Step 4:** Substitute the value of x into each angle to get the measurement of the angles. |

Your turn:

Directions: Determine the angle relationship. Solve for x and then find the measure of each angle.

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| 4. 120°(75 + 5x)°**Answer:** x = \_\_\_\_\_\_. The measures of the two angles are \_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_. | 5.(2x + 42)°(7x + 75)°**Answer:** x = \_\_\_\_\_\_. The measures of the two angles are \_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_. |
| 6.(2x)°(5x + 6)°**Answer:** x = \_\_\_\_\_\_. The measures of the two angles are \_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_. | 7.(7x + 6)°(9x – 28)°**Answer:** x = \_\_\_\_\_\_. The measures of the two angles are \_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_. |

**Homework**

**Directions:**

1. Name the angles as **Complementary** (90°), **Supplementary** (180°), or **Vertical** (=).

2. Set up an equation to solve for x. Then solve for x.

3. Once you have x, find the measure of each angle.

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| 1. Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_12x + 28 76° **Answer:** x = \_\_\_\_\_\_. The measures of the two angles are \_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_. | 2. Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_5x – 14 3x **Answer:** x = \_\_\_\_\_\_\_\_. The measures of the two angles are \_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_. |
| 3. Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_6x 3x – 18 **Answer:** x = \_\_\_\_\_\_. The measures of the two angles are \_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_. | 4. Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_3(2x + 6)  132° **Answer:** x = \_\_\_\_\_\_. The measures of the two angles are \_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_. |