

### **\*\*\* Answer Key\*\*\***

Name: \_\_\_\_\_ Period: \_\_\_\_\_ Date: \_\_\_\_\_

### **Cumulative Review Worksheet**

*Rewrite the conditional statement in if-then form.*

1. I will go to the game if I get all of my homework done.

If I get all of my homework done, then I will go to the game.

2. A student on the high honor roll has at least a 90 average.

If you have at least a 90 average, then you will be on the high honor roll.

*Write the converse, inverse and biconditional of each statement.*

6. If you like surfing, then you like to be at the beach. (true)

Converse: If you like to be at the beach, then you like to go surfing. (false)

Inverse: If you don't like surfing, then you don't like to be at the beach. (false)

Biconditional: You like to go surfing if and only if you like to go to the beach (false)

7. If angle P is 109 degrees, then angle P is obtuse. (true)

Converse: If angle P is obtuse, then it is 109 degrees. (false)

Inverse: If angle P is not 109 degrees, then it is not obtuse. (false)

Biconditional: Angle P is 109 degrees if and only if angle P is obtuse. (false)

*Rewrite the biconditional statement as a conditional statement and its converse. Then decide if the biconditional is true or false.*

8. An angle is acute if and only if it measures less than 90 degrees.

If an angle is acute, then it measures less than 90 degrees.

If an angle measures less than 90 degrees, then it is acute.

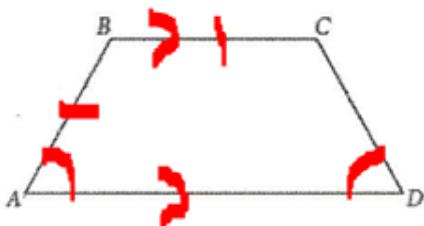
9. Three points are collinear if and only if they lie on the same line.

If three points are collinear, then they lie on the same line.

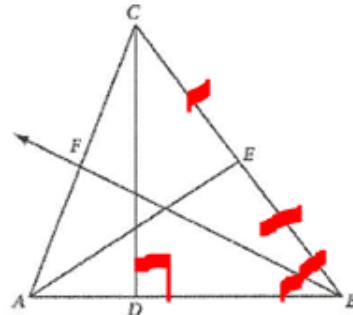
If three points lie on the same line, then they are collinear.

10. Mark the figure to indicate the following information.

a)  $\overline{AB} \cong \overline{BC}$ ,  $\overline{BC} \parallel \overline{AD}$ ,  $\angle A \cong \angle D$



b) Point E is the midpoint of  $\overline{CB}$ ,  $\angle CDB$  is a right angle, and  $\overrightarrow{BF}$  is an angle bisector.



11. On a separate piece of paper, write algebraic proofs for the following equations.

**17.**  $\frac{1}{2}(4x + 10) = 5 - 3x$

**18.**  $\frac{1}{3}x + 1 = -\frac{1}{3}x - 8$

**20.**  $\frac{1}{4}x + 2 = 3 - \frac{3}{4}x$

**21.**  $5(2x - 2) = 4 - 2x$

Proofs will vary, 17)  $x = 0$ , 18)  $x = -27/2$ , 20) Example below, 21)  $x = 7/6$

Statement

$(1/4)x + 2 = 3 - (3/4)x$

$x + 8 = 12 - 3x$

$4x + 8 = 12$

$4x = 4$

$x = 1$

Reasons

Given

Multiplication property of equality

Addition property of equality

Subtraction property of equality

Division property of equality

12. Find the measure of each angle.

$x = 10, y = 5$

1) Set up a system:

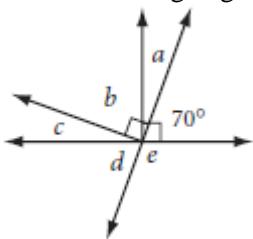
$10x + 2y = 8x + 6y$  which equals  $2x - 4y = 0$ .

Then add two angles that form a linear pair and set them equal to 180. So if you do  $8x + 6y + 10x - 6y = 180$  gives you  $x = 10$ .

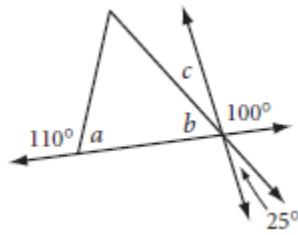
Then plug that back into the original to get  $y$  is 5.

13. Brenda has just been hired as a plumber's assistant. Her first task is to open all the water valves to release the pressure on the lines. She notices that the first four valves open by turning counterclockwise. She conjectures that all water valves open by turning counterclockwise. Is this inductive or deductive reasoning? **Inductive**

14. Find the missing angles.



$a = 20, b = 70, c = 20, d = 70, e = 110$



$a = 70, c = 25, b = 55$