Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **Unit 5 – Compound Statements**

Monica

Geometry Period:\_\_\_\_\_\_

Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Directions:** All of the questions below are Regents questions. For the multiple choice questions, choose the best answer for each question. Then, provide a brief justification explaining why that is the correct answer. For the open-ended questions, be sure to show all of your work.

1. The statement "*x* is a multiple of 3, and *x* is an even integer" is true when *x* is equal to

1) 9 2) 8 3) 3 4) 6

1. Stan was trying to guess Melanie’s age. She told him her age was an even number and a multiple of three. What could be Melanie’s age?

1) 10 2) 12 3) 15 4) 16

1. The statement  is true when *x* is equal to

1) 1 2) 10 3) 5 4) 4

1. Mary says, “The number I am thinking of is divisible by 2 or is divisible by 3.” Mary’s statement is false if the number she is thinking of is

1) 6 2) 8 3) 11 4) 15

1. The statement "*x* is divisible by 5 or *x* is divisible by 4" is false when *x* equals

1) 10 2) 16 3) 20 4) 27

1. The statement "Maya plays on the basketball team or Maya joins the ski club" is false. Which statement is true?
2. Maya plays on the basketball team and Maya joins the ski club.
3. Maya plays on the basketball team and Maya does not join the ski club.
4. Maya does not play on the basketball team and Maya joins the ski club.
5. Maya does not play on the basketball team and Maya does not join the ski club.
6. A conditional is always logically equivalent to its

1) disjunction 2) conjunction 3) converse 4) contrapositive

1. Seth is thinking of a number between 20 and 30. The number is prime and not more than 2 away from a perfect square. What is the number? Why?
2. Mark says, “The number I see is odd.” Jan says, “That same number Mark sees is also prime.” The teacher says, “Mark is correct or Jan is correct.” Some integers would make the teacher’s statement true while other integers would make it false. Give and explain *one* example of when the teacher’s statement is true. Give and explain *one* example of when the teacher’s statement is false.
3. Given: Two is an even integer or three is an even integer. Determine the truth value of this disjunction. Justify your answer.
4. Given the statement, “If two lines are parallel, then they do not intersect,” write the inverse, converse, and contrapositive of the statement. Which statement is logically equivalent to this conditional?

CONVERSE:

INVERSE:

CONTRAPOSITIVE: