

**G.G.25: Compound Statements 2: Know and apply the conditions under which a compound statement (conjunction, disjunction, conditional, biconditional) is true**

- 1 The statement " $x > 5$  or  $x < 3$ " is *false* when  $x$  is equal to
  - 1) 1
  - 2) 2
  - 3) 7
  - 4) 4
- 2 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
- 3 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
- 4 The statement "Maya plays on the basketball team or Maya joins the ski club" is false. Which statement is true?
  - 1) Maya plays on the basketball team and Maya joins the ski club.
  - 2) Maya plays on the basketball team and Maya does not join the ski club.
  - 3) Maya does not play on the basketball team and Maya joins the ski club.
  - 4) Maya does not play on the basketball team and Maya does not join the ski club.
- 5 Mark says, "The number I see is odd." Jan says, "That same number is 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.
- 6 Given: Two is an even integer or three is an even integer.  
Determine the truth value of this disjunction.  
Justify your answer.

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1 ANS: 4 REF: 081505ge

2 ANS: 3 REF: 010003a

3 ANS: 4 REF: 080505a

4 ANS: 4 REF: 080819a

5 ANS:

For the teacher's disjunction to be true, either Mark, Jan or both must be correct. Numbers that are either odd or prime include 2, 3, 5, 7, 9, .... For the teacher's disjunction to be false, both Mark and Jan must be incorrect.

Numbers that are neither odd nor prime include 4, 6, 8, 10, ....

REF: 010129a

6 ANS:

True. The first statement is true and the second statement is false. In a disjunction, if either statement is true, the disjunction is true.

REF: 060933ge