

Name _____

13-2B Lesson Master**Questions on SPUR Objectives**

See pages 833–835 for objectives.

PROPERTIES Objective D

In 1-10, tell whether the statement is true or false.

1. If $\begin{cases} x + 3y = 5 \\ -2x - 6y = -10 \end{cases}$, then $x = 2$ and $y = 1$. _____
2. An equation in one variable has one solution if and only if it is a linear equation. _____
3. A number is divisible by 9 if and only if it is divisible by 3. _____
4. The equation of a parabola is $y = (x + 1)^2 - 3$ if and only if the vertex is $(-1, -3)$. _____
5. A quadratic equation is factorable over the integers if and only if the discriminant is a perfect square. _____
6. If a right triangle has legs of length 3, then the hypotenuse has length $3\sqrt{2}$. _____
7. If $-3(x + 5) \geq 15$, then $x \geq -10$. _____
8. If $x = 2$ and $y = -1$, then $\begin{cases} 4x - 2y = 10 \\ 2x + y = 3 \end{cases}$ _____
9. If the sides of a triangle are 5, 12, and 13 units, then the triangle is a right triangle. _____
10. \sqrt{x} is a real number if and only if $x \geq 0$. _____

In 11 and 12, write the two if-then statements that are meant by the if and only if statement.

11. You can go to the dance if and only if you clean your room.

12. $\begin{cases} 3x + 5y = 19 \\ x - 8y = -42 \end{cases}$ if and only if $x = -2$ and $y = 5$.

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USES Objective G

In 13 and 14, a statement is given.

- a. Is it true?
- b. State its converse.
- c. Is its converse true?
- d. If either the statement or its converse is not true, correct them so that they are both true, and rewrite the sentence as an if-and-only-if statement.

13. If $x = 5$, then $|3x| = 15$.

- a. _____
- b. _____
- c. _____
- d. _____

14. If a rectangle has four congruent sides, then the rectangle is a square.

- a. _____
- b. _____
- c. _____
- d. _____

15. On Friday, Mrs. Steele tells her Algebra I class that they will have a quiz the following Friday. The following Monday, Jalil is surprised to find out that she will have a quiz in Mrs. Steele's Algebra I class. Jalil had assumed that they would have a quiz only if it were Friday. In making her assumption, Jalil assumed that statements (1) and (2) below are equivalent. Are they? If not, what relationship do the statements have to each other?

- (1) If it is Friday of the following week, then Jalil has an Algebra I quiz in Mrs. Steele's class.
- (2) If Jalil has an Algebra 1 quiz in Mrs. Steele's class, then it must be Friday of the following week.