Lesson 1-8

Logical Reasoning and Counterexamples

1. Which values are a counterexample to the given statement?

If x + y = an even number, then x is even and y is even.

A. x = 21, y = 3 B. x = 12, y = 6

C. x = 7, y = 12 D. x = 10, y = 9

2. Identify the conclusion in the following algebraic statement:

If a = 3, then 2a + 1 = 7.

A. a = 3 B. 2a

C. 2a + 1 D. 2a + 1 = 7

3. Which values are a counterexample to the given statement?

If $x \cdot y$ = a decimal, then neither x nor y is a whole number.

A. x = 7.1, y = 2.2 B. x = 1, y = 0.5

C. x = 1.75, y = 0.9 D. x = 0.3, y = 0.2

4. Identify the conclusion in the following statement: If 13b + 12 = 77, then b = 5.

A. b B. 13b + 12

C. b = 5 D. 13b + 12 = 17

5. Take the given hypothesis and conclusion and write a true statement in if-then form.

Hypothesis: The pitcher is getting tired.

Conclusion: He cannot throw fastballs anymore.

A. If the pitcher cannot throw fastballs anymore, then he is getting tired.

B. If the pitcher is getting tired, then he cannot throw fastballs anymore.

C. If the pitcher is in the first inning, then he will not be tired.

D. If the pitcher is not getting tired, then he can throw fastballs.