A conjecture

Inductive reasoning

A counterexample

conjecture: When multiplying two numbers, the product is always greater than either number.

Deductive reasoning

Laws of logic:

Law of Detachment

Law of Syllogism:

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Based on the pattern, what are the next two terms of the sequence?
5, 10, 15, 20, . . .

A. 100, 500 B. 25, 500 C. 25, 30 D. 30, 35

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Based on the pattern, what is the next figure in the sequence?

A.  B.  C.  D. 

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What conjecture can you make about the tenth term in the pattern A, B, A, C, A, B, A, C?

A. The tenth term is A.
B. The tenth term is B.
C. The tenth term is C.
D. There is not enough information.

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Alfred is practicing typing. The first time he tested himself, he could type 27 words per minute. After practicing for a week, he could type 30 words per minute. After two weeks he could type 33 words per minute. Based on this pattern, predict how fast Alfred will be able to type after 4 weeks of practice.

A. 39 words per minute
B. 36 words per minute
C. 33 words per minute
D. 43 words per minute

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What is a counterexample for the conjecture?
Conjecture: The product of two positive numbers is greater than the sum of the two numbers.

A. 3 and 5
B. A counterexample exists, but it is not shown above.
C. 2 and 2
D. There is no counterexample. The conjecture is true.

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What is a counterexample for the conjecture?
Conjecture: Any number that is divisible by 3 is also divisible by 6.

A. 18 B. 12 C. 21 D. 24

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Which statement is the Law of Detachment?

A. If $p \rightarrow q$ is a true statement and q is true, then p is true.
B. If $p \rightarrow q$ is a true statement and p is true, then q is true.
C. If $p \rightarrow q$ and $q \rightarrow r$ are true, then $p \rightarrow r$ is a true statement.
D. If $p \rightarrow q$ is a true statement and q is true, then $q \rightarrow p$ is true.

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Use the Law of Syllogism to draw a conclusion from the two given statements.
If there is a storm, then there is thunder.
If there is thunder, Li's dog is under her bed.

A. There is a storm.
B. Li's dog is under her bed.
C. If there is not a storm, Li's dog is not under her bed.
D. If there is a storm, then Li's dog is under her bed.