

Practice

Deductive Reasoning

Determine if a valid conclusion can be reached from the two true statements using the Law of Detachment or the Law of Syllogism. If a valid conclusion is possible, state it and the law that is used. If a valid conclusion does not follow, write no conclusion.

1. If Jim is a Texan, then he is an American.
Jim is a Texan.
2. If Spot is a dog, then he has four legs.
Spot has four legs.
3. If Rachel lives in Tampa, then Rachel lives in Florida.
If Rachel lives in Florida, then Rachel lives in the United States.
4. If October 12 is a Monday, then October 13 is a Tuesday.
October 12 is a Monday.
5. If Henry studies his algebra, then he passes the test.
If Henry passes the test, then he will get a good grade.

Determine if statement (3) follows from statements (1) and (2) by the Law of Detachment or the Law of Syllogism. If it does, state which law was used. If it does not, write invalid.

6. (1) If the measure of an angle is greater than 90, then it is obtuse.
(2) $m\angle T$ is greater than 90.
(3) $\angle T$ is obtuse.
7. (1) If Pedro is taking history, then he will study about World War II.
(2) Pedro will study about World War II.
(3) Pedro is taking history.
8. (1) If Julie works after school, then she works in a department store.
(2) Julie works after school.
(3) Julie works in a department store.
9. (1) If William is reading, then he is reading a magazine.
(2) If William is reading a magazine, then he is reading a magazine about computers.
(3) If William is reading, then he is reading a magazine about computers.
10. **Look for a Pattern** Tanya likes to burn candles. She has found that, once a candle has burned, she can melt 3 candle stubs, add a new wick, and have one more candle to burn.
How many total candles can she burn from a box of 15 candles?