

Use the Law of Detachment to make a conclusion.

1. If a doctor suspects her patient has a broken bone, then she should take an x-ray.
Dr. Ngemba suspects Lilly has a broken arm.

Conclusion: _____

2. If three points are on the same line, then they are collinear.
Points X , Y , and Z are on line m .

Conclusion: _____

3. If an angle is obtuse, then it is not acute.
 $\angle XYZ$ is obtuse.

Conclusion: _____

4. If a student wants to go to college, then the student must study hard.
Rashid wants to go to Pennsylvania State University.

Conclusion: _____

Use the Law of Syllogism to make a conclusion.

5. If an animal is a Florida panther, then its scientific name is *Puma concolor coryi*.
If an animal is a *Puma concolor coryi*, then it is endangered.

Conclusion: _____

6. If a line intersects a segment at its midpoint, then the line bisects the segment.
If a line bisects a segment, then it divides the segment into two congruent segments.

Conclusion: _____

7. If you read often, then you will improve your vocabulary.
If you improve your vocabulary, then you will improve your score on a standardized test.

Conclusion: _____

Use the Law of Detachment(LD) and the Law of Syllogism(LS) to make conclusions from the following statements. State which Law was used. Write Not Valid (NV) if it is not possible to make a conclusion.

8. If a student gets an A on a final exam, then the student will pass the course.
Tracey got an A on the final exam.

_____ Conclusion: _____

9. If a rectangle has side lengths 3 cm and 4 cm, then it has an area of 12cm^2 .
Rectangle $ABCD$ has an area of 12cm^2 .

_____ Conclusion: _____

10. If a whole number ends in 6, then it is divisible by 2.
If a whole number ends in 4, then it is divisible by 2.

_____ Conclusion: _____

11. If you are studying botany, then you are studying biology.
If you are studying biology, then you are studying a science.

_____ Conclusion: _____

Label each as Law of Detachment (LD), Law of Syllogism (LS) or Not Valid (NV).

- _____ 12. If Professor Jones wrote a paper about the binomial theorem, then he is familiar with Pascal's triangle.
Professor Jones is familiar with Pascal's triangle.
 \therefore Professor Jones wrote a paper about the binomial theorem.

- _____ 13. If you are open-minded, you will listen to both sides of a story.
If you listen to both sides of a story, then you will make more intelligent decisions.
 \therefore If you are open-minded, then you will make more intelligent decisions.

- _____ 14. If two base angles of a triangle are congruent, then the triangle has two congruent sides.
 $\triangle ABC$ has two congruent base angles.
 $\therefore \triangle ABC$ has two congruent sides.

- _____ 15. If you use Shining Smile toothpaste, then you will be successful.
Jack did not use Shining Smile toothpaste.
 \therefore Jack is not successful.