

Use the Law of Detachment to draw a conclusion.

1. If a student gets an A on a final exam, then the student will pass the course.
Felicia gets an A on the music theory final exam.
2. If a student wants to go to college, then the student must study hard.
Rashid wants to go to the University of North Carolina.
3. If two lines are parallel, then they do not intersect.
Line ℓ is parallel to line m .
4. If there is lightning, then it is not safe to be out in the open.
Marla sees lightning from the soccer field.

If possible, use the Law of Detachment to draw a conclusion. If not possible, write not possible.

5. If a figure is a rectangle, then it has two pairs of parallel sides.
Figure $ABCD$ is a rectangle.
6. Algebra If n is a prime number greater than 2, then n^2 is an odd number.
 9^2 is an odd number.
7. If three points are on the same line, then they are collinear.
Points X , Y , and Z are on line m .
8. If an angle is obtuse, then it is not acute.
 $\angle XYZ$ is not obtuse.
9. If you are a Golden Gopher, you've attended the University of Minnesota.
(See photo.)

Use the Law of Syllogism to draw a conclusion.

10. Zoology If an animal is a red wolf, then its scientific name is *Canis rufus*.
If an animal is named *Canis rufus*, then it is endangered.
11. If two planes intersect, then they intersect in a line.
If two planes are not parallel, then they intersect.
12. If you read a good book, then you enjoy yourself.
If you enjoy yourself, then your time is well spent.
13. If you are studying biology, then you are studying a science.
If you are studying botany, then you are studying biology.

Geography Use the Law of Detachment and the Law of Syllogism to draw conclusions from the following statements.

14. If a mountain is the highest in Alaska, then it is the highest in the United States.
If an Alaskan mountain is over 20,300 ft high, then it is the highest in Alaska.
Alaska's Mount McKinley is 20,320 ft high.
15. If you live in Lubbock, then you live in Texas. Levon lives in Lubbock.
If you live in Texas, then you live in the 28th state to enter the Union.

For Exercises 16–21, assume that the following statements are true.

- A. If Maria is drinking juice, then it is breakfast time.
- B. If it is lunchtime, then Kira is drinking milk and nothing else.
- C. If it is mealtime, then Curtis is drinking water and nothing else.
- D. If it is breakfast time, then Julio is drinking juice and nothing else.
- E. Maria is drinking juice.

Use only the information given above. For each statement, write *must be true*, *may be true*, or *is not true*. Explain your reasoning.

16. Julio is drinking juice.
17. Curtis is drinking water.
18. Kira is drinking milk.
19. Curtis is drinking juice.
20. Maria is drinking water.
21. Julio is drinking milk.