

Name: _____

Unit 2: Logic & Proof



Date: _____ Per: _____

Homework 5: Deductive Reasoning

**** This is a 2-page document! ****

Directions: Use the Law of Detachment to give a valid conclusion.
If not possible, write *no valid conclusion*.

1. **Given:** If Logan eats his vegetables, then he can have a bowl of ice cream.
Logan eats his vegetables.
Conclusion: _____

2. **Given:** If a polynomial is prime, then it cannot be factored.
 $5x + 13y$ is prime.
Conclusion: _____

3. **Given:** If you visit Paris, then you will see the Eiffel Tower.
You did not see the Eiffel Tower.
Conclusion: _____

4. **Given:** If the measure of an angle is greater than 90° , then it is an obtuse angle.
 $m\angle PQR = 115^\circ$
Conclusion: _____

Directions: Use the Law of Syllogism to give a valid conclusion.
If not possible, write *no valid conclusion*.

5. **Given:** If Nicole is tardy to class again, she will get detention.
If Nicole gets detention, her mother will take away her phone.
Conclusion: _____

6. **Given:** If it is raining, then I will bring my umbrella.
If I do not bring my umbrella, then I do not need my rain boots.
Conclusion: _____

7. **Given:** If a natural number ends in 0, then it is divisible by 10.
If a natural number is divisible by 10, then it is divisible by 5.
Conclusion: _____

Directions: Determine whether the conclusion follows from the given statements by the Law of Detachment or the Law of Syllogism. If it does, state which law was used. If not, write invalid.

8. **Given:** If you go camping, then you will need a flashlight.
Given: If you need a flashlight, then you will need extra batteries.
Conclusion: If you go camping, then you will need extra batteries.

Answer: _____

9. **Given:** If Sally goes to the airport, then she will need to pay for parking.
Given: If Sally does not pay for parking, then her car will get towed.
Conclusion: If Sally does not go to the airport, then her car will not get towed.

Answer: _____

10. **Given:** If you leave the country, then you will need a passport.
Given: Nate is planning a trip to Italy.
Conclusion: Nate will need a passport.

Answer: _____

11. **Given:** If you buy one pair of shoes, then you get another pair for 50% off.
Given: Carolyn does not buy one pair of shoes.
Conclusion: Carolyn does not get another pair for 50% off.

Answer: _____

12. **Given:** If the sum of the measures of two angles is 180° , then they are supplementary.
Given: $m\angle D = 110^\circ$ and $m\angle E = 70^\circ$
Conclusion: $\angle D$ and $\angle E$ are supplementary angles.

Answer: _____

13. **Given:** If a number is a multiple of 16, then it is a multiple of 8.
Given: If a number is a multiple of 8, then it is a multiple of 4.
Conclusion: If a number is a multiple of 16, then it is a multiple of 4.

Answer: _____