Inductive Reasoning

INDUCTIVE REASONING: _____

CONJECTURE: _____

Example 1: **Give the next two terms in the sequence.**

1. 2, 4, 8, 16, . . .

2. 18, 9, 0, −9, . . .

3. 6, 8, 12, 18, . . .

4. 3, −4, −11, −18, . . .

5. −11, −6, −1, 4, . . .

6. 9, 10, 13, 18, . . .

7. 1, 7, 19, 37, . . .

8. 14, 15, 17, 20, . . .

Example 2: **Give the next figure in each pattern.**

9. 

10. 

11. 

12. 

13. 

14. 

You Try: **Give the next two terms in the sequence.**

3, 6, 12, 24,…

384, 192, 96, 48,…

Monday, Tuesday, Wednesday,…

O, T, T, F, F, S, S, E,…

Deductive Reasoning

DEDUCTIVE REASONING: _____

There are 2 laws of deductive reasoning:

LAW OF DETACHMENT:
If p → q is a true conditional statement and p is true, then q is true.

Example 1:
If you break an item in a store, you must pay for it.
Jill broke and vase in Potter's Gift Shop.
Conclusion is: Jill must pay for the vase.

Example 2:
Angles that are complementary have measures with a sum of 90.
$\angle A$ *and* $\angle B$ are complementary.
Conclusion is: _____

Example 3:
If a dog eats Dogfood Delights, then the dog is happy.
Fido is a happy dog.
Conclusion is: _____

LAW OF SYLLOGISM:
If p → q and q → r are true conditionals, then p → r is also true.

Example 1:
If you eat vegetables, then you are a less risk for some cancers.
If you are at less risk for some cancers, you will probably live longer.
Conclusion is: If you eat vegetables, you will probably live longer.

Example 2:
If people live in Manhattan, then they live in New York.
If people live in New York, then they live in the United States.
Conclusion is: _____

Example 3:
If you have a job, then you have an income.
If you have an income, then you must pay taxes.
Conclusion is: _____