[CORRECTIVE ASSIGNMENT 2.1: INDUCTIVE REASONING]

If the given statement is not in if-then form, rewrite it. Identify the hypothesis and the conclusion. Then write the converse, inverse, and contrapositive.

1. If a figure is a hexagon, then it has six sides.
   a. Converse: __________________________________________________________
   b. Inverse: __________________________________________________________
   c. Contrapositive: ____________________________________________________

2. All triangles are polygons.
   a. If-Then Conditional statement: ______________________________________
   b. Hypothesis: _________________________________________________________
   c. Conclusion: _________________________________________________________
   d. Converse: _________________________________________________________
   e. Inverse: ____________________________________________________________
   f. Contrapositive: _____________________________________________________

Determine the truth-value for the following statements. If a statement if false, give a counter example.

4. If you are a freshman, then you are enrolled in Algebra I.
5. If a number is even, then it is divisible by 2.
6. If your first name is Mike, then your last name is Raffone.
7. If the figure is a quadrilateral, then its angles measure 90°.
8. If a figure has 8 congruent sides, then that figure is a octagon.

Find a pattern for each sequence. Use the pattern to find the next two terms.

9. 2, 6, 10, 14...
10. 100, 10, 1, 0.1...
11. A, B, E, C, I, D...

Use the sequence and inductive reasoning to make a conjecture:

12. What pattern is in the 16th figure?  
13. What is the shape of the 25th figure?
If the given statement is not in if-then form, rewrite it. Identify the hypothesis and the conclusion. Then write the converse, inverse, and contrapositive.

1. If a figure is a hexagon, then it has six sides.
   a. Converse: If a figure has 6 sides, then it is a hexagon.
   b. Inverse: If a figure is not a hexagon, then it does not have 6 sides.
   c. Contrapositive: If a figure does not have six sides, then it is not a hexagon.

2. All triangles are polygons.
   a. If-Then Conditional statement: If a shape is a triangle, then that shape is a polygon.
   b. Hypothesis: If a shape is a triangle
   c. Conclusion: then that shape is a polygon.
   d. Converse: If a shape is a polygon, then that shape is a triangle.
   e. Inverse: If a shape is not a triangle, then that shape is not a polygon.
   f. Contrapositive: If a shape is not a polygon, then that shape is not a triangle.

Determine the truth-value for the following statements. If a statement is false, give a counter example.

4. If you are a freshman, then you are enrolled in Algebra I. False (Many Freshmen take Geometry)
5. If a number is even, then it is divisible by 2. True
6. If your first name is Mike, then your last name is Raffone. False (Our very own Mike Brust)
7. If the figure is a quadrilateral, then its angles measure 90°. False (An isosceles trapezoid would have no more than 1 right angle. The other angles would be not-right.
8. If a figure has 8 congruent sides, then that figure is a octagon. True.

Find a pattern for each sequence. Use the pattern to find the next two terms. vowel-consonant-vowel-consonant...

9. 2, 6, 10, 14... 10. 100, 10, 1, 0.1...
   18, 22 (add 4) 0.01, 0.001 (Div by 10)
11. A, B, E, C, I, D...
Use the sequence and inductive reasoning to make a conjecture:

12. What pattern is in the 16th figure? Wavy lines
13. What is the shape of the 25th figure? Circle