

[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 is 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  $90^\circ$ .
- 8. If a figure has 8 congruent sides, then that figure is an 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 16<sup>th</sup> figure?
- 13. What is the shape of the 25<sup>th</sup> figure?

**[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: 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-cons...etc.*

- 9. 2, 6, 10, 14... *18, 22 (add 4)*
- 10. 100, 10, 1, 0.1... *0.01, 0.001 (Div by 10)*
- 11.  $\begin{matrix} VCVCVC \\ A, B, E, C, I, D... \\ O, F \end{matrix}$

Use the sequence and inductive reasoning to make a conjecture:



- 12. What pattern is in the 16<sup>th</sup> figure? *Wavy lines*
- 13. What is the shape of the 25<sup>th</sup> figure? *Circle*