1. The hexagon below is surrounded by 12 dots.

   a. How many hexagons will be in the 5th figure of the pattern? _____

   b. Which figure of the pattern will have 28 hexagons? _____

2. Write the next three numbers in the pattern.

   10, 15, 21, 28, _____ , _____ , _____

3. Fill in the missing numbers in the pattern.

   2, 4, _____ , 16, 32 , _____

4. Find a counterexample to disprove the conjecture;

   The value of x^3 is always greater than the value of x. _____

5. Find the counterexample to disprove the conjecture.

   Regular polygons always have a even number of sides. _____

6. Find the counterexample to disprove the conjecture.

   If $x > 5$, then $x > 10$. _____

7. Rewrite the statements as a biconditional.

   If Chris is elected class president, then he has the most votes.
   If Chris has the most votes, then he will be elected class president.

   _____

8. Which statement is the reflexive property, symmetric property, or transitive property.

If $\overline{AB} \cong \overline{CD}$, then $\overline{CD} \cong \overline{AB}$. _____

$\angle P \cong \angle P$ _____

If $\angle 6 \cong \angle 7$ and $\angle 7 \cong \angle 8$, then $\angle 6 \cong \angle 8$. _____

9. Solve the equation and write a reason for each step.

$6(x+4) = 60$ given

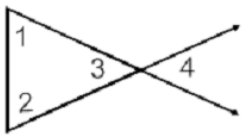
_____ _____

_____ _____

_____ _____

10.

GIVEN: $\angle 1 \cong \angle 3$



PROVE: $\angle 1 \cong \angle 4$

Statements	Reasons

11. If $x = 3$ then $2x + 4 = 10$.

converse: _____

inverse: _____

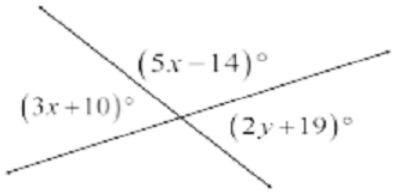
contrapositve: _____

12. Solve the following equations for y.

a.) $-4x + 2y = 16$

b.) $4y + 12x = 40$

13. Find the values of x and y. (circle answers)



14. If $\angle A$ and $\angle B$ are vertical angles, and $\angle A = 7x + 3$ and $\angle B = 80°$. Find x. _____

.

15. If a polygon is equilateral, then it has all congruent sides.

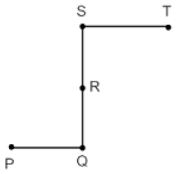
converse: _____

inverse: _____

contrapositve: _____

16.

GIVEN: $\overline{PQ} \cong \overline{RS}$,
R is the midpoint of $\overline{SQ}$



PROVE: $\overline{PQ} \cong \overline{QR}$

Statements	Reasons

17. Write the following statement as a conditional: Every rectangle has four right angles..

_____

18. Make a valid conclusion given the two statements (if possible).

a.) If you order apple pie, then it will be served with ice cream.
Joe ordered apple pie.

_____

b.) If you eat to much turkey, then you will get sick.
Abby got sick.

_____

c.) If angle 2 is acute, then angle 3 is obtuse.
If angle 3 is obtuse, then angle 4 is acute.

_____

19. True/False

a.) Through any 3 points there is exactly one line. _____

b.) The intersection of two planes is a line. _____

c.) Two lines can intersect in more than one point. _____