

A. Write True if the statement is correct and False if it is incorrect.

- _____ 1. A rectangle has four $\cong$ sides.
- _____ 2. If a figure has two congruent opposite sides, then it is a square.
- _____ 3. Every square is a rectangle.
- _____ 4. A conditional statement become false, If the hypothesis is true and the conclusion is false.
- _____ 5. If a point lies on the y- axis, then its x-coordinate is zero.
- _____ 6. If points are noncollinear, then they lie on the same line.
- _____ 7. If two coplanar lines intersect, then the lines are parallel.
- _____ 8. If a quadrilateral is a parallelogram, then it is a rhombus.
- _____ 9. If the interior and exterior angles of a regular polygon are equal, then a polygon has 6 sides.
- _____ 10. The sum of the interior angles of a regular decagon is 2160° .

B. Write a conditional statement and its converse of the following statement.

11. *A rhombus is a parallelogram with four equal sides.*

Conditional statement: _____

Converse statement: _____

12. *Isosceles triangle has two congruent sides.*

Conditional statement: _____

Converse statement: _____

13. *The sum of the interior angles of a regular heptagon is 900° .*

Conditional statement: _____

Converse statement: _____

For items 14 – 15. Show your solutions and explain your answer.

14. If each interior angle of a regular polygon is five times the exterior angle, how many sides has the polygon?

15. How many sides does a regular polygon have if the measure of its interior angle is 165° ?

C. Complete the proof.

Given : $\angle 1$ and $\angle 2$ are complementary angles

Prove: $\angle 2$ and $\angle 3$ are complementary angles

Statements	Reasons
1. $\angle 1$ and $\angle 2$ are complementary.	1. Given
2. _____	2. Def. of comp. $\angle$
3. $\angle 1 \cong \angle 3$	3. _____
4. $m\angle 1 = m\angle 3$	4. Def. of $\cong \angle$
5. _____	5. Subst. Steps 2, 4
6. $\angle 2$ and $\angle 3$ are complementary.	6. Def. of comp. $\angle$

