

**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  $2160^\circ$ .

**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  $900^\circ$ .*

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  $165^\circ$ ?

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

