Geometry (H)
Worksheet: 1st Semester Review:True/False, Always/Sometimes/Never

Classify each statement as TRUE or FALSE.

1. Three given points are always coplanar.
2. A line that intersects a segment at its midpoint is the perpendicular bisector.
3. The contrapositive of a true conditional is sometimes false.
4. An acute angle inscribed in a circle must intercept a minor arc.
5. In a plane the locus of points equidistant from M and N is the midpoint of $\overline{MN}$.
6. Through a point not on a line there are two lines parallel to the given line.
7. A triangle with vertices (a, 0), (-a, 0), and (0, a) is equilateral.
8. Point, line, and plane are defined terms in Euclidean geometry.
9. A point lies on the bisector of ∠ABC if and only if it is equidistant from A and C.
10. A triangle with sides of length 2x, 3x, and 4x must be obtuse.
11. Collinear points are also coplanar.
12. If two rays have the same endpoint then they are opposite rays.
13. It is possible for two angles to be adjacent, congruent, and complementary.
14. If a = b and b = c, then a = c.
15. The intersection of two planes can be a single point.
16. If AB = BC, then B is the midpoint of $\overline{AC}$.
17. Two lines that have no points in common must be parallel.
18. A triangle is isosceles if it is equilateral.
19. If a ⊥ c and b ⊥ c, then a and b are always parallel.
20. The diagonals of a rhombus bisect each other.
21. Through any two points there is exactly one line.
22. If two planes intersect, then thier intersection can be a point.
23. If two angles of one triangle are congruent to two angles of another triangle, then the triangles are similar.
24. Semicircles can be adjacent arcs.
25. The maesure of the arc formed by two adjacent arcs is the sum of the measures of the arcs.
26. If the exterior sides of two adjacent angles lie on a line then the sum of their measures is 90.
27. Two points determine a plane.
28. Space contains at least four points.
29. Two lines can intersect in more than one point.

30. If an angle and two sides of one triangle are congruent to an angle and two sides of another triangle, then the triangles are congruent.

31. Two angles complementary to the same angle are congruent to each other.

32. Vertical angles may be adjacent angles.

33. If two angles are compmentary and congruent, then each has a measure of 45.

34. Two vertical angles may be supplementary.

35. If the sum of the measures of three angles is 90, then the angles are complementary.

36. If the exterior sides of two adjacent angles are perpendicular, then the angles are complementary.

37. Skew lines are noncoplanar lines.

38. It is possible for two planes to be skew.

39. If two lines are cut by a transversal, then corresponding angles are congruent.

40. Two lines perpendicular to the same line are parallel to each other.

41. Two lines parallel to the same line are parallel to each other.

42. Another name for an if-then statement is a conditional.

43. The converse of a conditional is formed by negating the hypothesis ad the conclusion.

44. The converse and the inverse of a conditional are logically equivalent.

45. "If $\angle A \cong \angle B$, then $\angle B \cong \angle A$" is an example of the Transitive Property.

46. A conjecture is a conclusion based on observation.

47. Vertical an$\angle$gles are congruent.

48. A scalene triangle may be obtuse.

49. An equilateral triangle is also isosceles.

50. An isoscles right triangle is a 45-45-90 triangle.

51. The measure of an exterior angle of a triangle is equal to the sum of the measures of the two remote interior angles.

52. Corresponding parts of congruent triangles are congruent.

53. If two angles of one triangle are congruent to two angles of another triangle, then the third angles are complementary.

54. In a triangle, the longest side is opposite the smallest angle.

55. In an isoscles triangle, the median from any angle is also the perpendicular bisector of the opposite side.

56. Concurrect lines are two or more lines that intersect in one point.

57. The medians of a triangle are concurrent at a point called the centroid.

58. The lines that contain the altitudes are concurrent at a point called the orthocenter.

59. The orhtocenter is always located in the interior of a triangle.

60. The perpendicular bisectors of the side are concurrent at a point called the circumcenter.

61. The centroid, othocenter, and circumcenter all lie on Euler's line.

62. A proportion is an equation stating that two ratios are equal.

63. A Golden Rectangle is a rectangle that can be divided into two equal squares.

64. The geometric mean of two numbers can be negative.

65. The altitude to the hypotenuse of a right triangle divides the triangle into two triangles that are similar to each other.

66. The numbers 6, 8, and 10 are primitive Pythagorean triples.

67. If the square of the longest side of a triangle is greater than the sum of the squares of the other two sides, then the triangle is acute.

68. In a 45°-45°-90° triangle, the hypotenuse is $\sqrt{3}$ times as long as a leg.

69. Opposite side of a parallelogram are congruent.

70. A rectangle is a parallelogram with four right angles.

71. A rhombus is a parallelogram with four congruent sides.

72. The diagonals of a square are congruent.

73. The midpoint of the hypotenuse of a right triangle is equidistant from the three vertices.

74. Tangents to a circle from apoint are congruent.

75. A central angle of a circle is an angle with its vertex on the circle.

Complete with *always, sometimes,* or *never*.

1. Vertical angles are _____ congruent.

2. Perpendicular lines _____ form four right angles.

3. A theorem is _____ a true statement.

4. A postulate is _____ proven to be true.

5. Supplements of congruent angles are _____ congruent.

6. Two angles are _____ complements.

7. A statement in a proof _____ has a reason.

8. The diagonals of a quadrilateral _____ bisect each other.

9. If one pair of opposite sides of a quadrilateral is congruent and parallel, then the quadrilateral is _____ a parallelogram.

10. A rectangle _____ has perpendicular diagonals

11. A square is _____ a rhombus.

12. A rectangle _____ has consecutive sides congruent.

13. The diagonals of a trapezoid _____ bisect each other.

14. A rectangle is _____ a rhombus.

15. Two lines parallel to a third line are _____ parallel.

16. An altitude of a triangle is _____ a median.

17. Opposite angles of a quadrilateral inscribed in a circle are _____ supplementary.

18. An angle inscribed in a semicircle is _____ a right angle.

19. A true conditional _____ has a true converse.

20. A triangle with sides of length $\sqrt{3}$, 2, and $\sqrt{7}$ is _____ a right traingle.

21. Vertical angles are _____ adjacent angles.

22. A conclusion based on inductive reasoning is _____ correct.

23. Two right triangles with congruent hypotenuses are _____ congruent.

24. If the diagonals of a quadrilateral are perpendicular bisectors of each other, then the quadrilateral is _____ a rhombus.

25. A circle _____ contains three collinear points.

26. The center of a circle that can be circumscribed about a given triangle is _____ outside the triangle.

27. The length of a segment is _____ negative.

28. If point S is between points R and V, then S _____ lies on $\overleftrightarrow{RV}$.

29. A bisector of a segment is _____ a line.

30. A ray _____ has a midpoint.

31. Congruent segments _____ have equal lengths.

32. $\overrightarrow{AB}$ and $\overrightarrow{BA}$ _____ denote the same ray.

33. Three points _____ determine a plane.

34. Two points _____ lie in exactly one line.

35. Three points _____ lie in exactly one line.

36. Three collinear points _____ lie in exactly one plane.

37. Two planes _____ intersect.

38. Two intersecting planes _____ intersect in exactly one point.

39. Two intersecting lines _____ intersect in exactly one point.

40. Two lines _____ intersect in exactly one point.

41. Two intersecting lines _____ lie in exactly one plane.

42. A line and a point not on that line _____ lie in more than one plane.

43. A line _____ contains exactly one point.

44. When A and B are in a plane, $\overleftrightarrow{AB}$ is _____ in that plane.

45. Vertical angles _____ have a common vertex.

46. Two right angles are _____ complementary.

47. Right angles are _____ vertical angles.

48. Angles A, B, and C are _____ complementary.

49. Vetical angles _____ have a common supplement.

50. If a pair of vertical angles are supplementary, the lines forming the angles are _____ perpendicular.

51. A postulate is _____ used as a reason in a proof.

52. Supplements of congruent angles are _____ congruent.

53. Two angles are _____ complements.
54. A transversal _____ intersects parallel lines.
55. Skew lines are _____ coplanar.
56. Coplanar lines are _____ parallel.
57. In a plane, two lines perpendicular to a third line are _____ parallel.
58. Two lines that have no points in common are _____ parallel.
59. An obtuse angle is _____ a right angle.
60. A parallelogram is _____ a quadrilateral.
61. A quadrilateral is _____ a square.
62. All sides of a parallelogram are _____ congruent.
63. The diagonals of a quadrilateral _____ bisect each other.
64. If a conditional is false, then its converse is _____ false.
65. An angle _____ has a complement.
66. The diagonals of a trapezoid are _____ perpendicular.
67. Opposite angles of an inscribed quadrilateral are _____ congruent.
68. A diameter that bisects a chord is _____ perpendicualr to the chord.
69. A contrapositive of a true conditional is _____ true.
70. Two obtuse triangles are _____ similar.
71. A quadrilateral _____ has four obtuse angles.
72. Two isoscles right triangles with congruent hypotenuses are _____ congruent.
73. If the lengths of the sides of two triangles are in proportion, then the corresponding angles are _____ congruent.
74. A secant to a circle _____ contains a chord.
75. The longest chord of a circle is _____ a diameter.