Chapter 3 Test

1. What geometric figure is created by the graph of the inequality $x \leq 100$ on a number line?
   A ray  B segment  C line  D angle

2. Which statement is true in Euclidean geometry?
   A A point has no size or shape.
   B Through any two points, there can be many lines.
   C Two different lines can intersect in two or more points.
   D none of these

3. On a number line, $AT = 40$ and the coordinate of $A$ is $-5$. What are the possible coordinates of $T$?
   A $-45$ only  B $35$ only
   C $-45$ or $35$  D $-35$ or $45$

4. Consider the conditional: I’ll take my umbrella if it looks as if it will rain. Which statement is the converse of this conditional?
   A If it looks as if it will rain, I’ll take my umbrella.
   B If I take my umbrella, then it looks as if it will rain.
   C If it doesn’t look as if it will rain, then I’ll take my umbrella.
   D If I take my umbrella, then it doesn’t look as if it will rain.

5. Consider the conditional: If a bouquet is made of red roses, then it is beautiful. An ugly bouquet of red roses is ______.
   A an instance of the conditional
   B a counterexample to the conditional
   C an instance of the converse
   D neither an instance of nor a counterexample to the conditional

6. The slope of any line perpendicular to the line with equation $-2x + 3y = 9$ is ______.
   A $\frac{2}{3}$  B $-\frac{2}{3}$  C $\frac{3}{2}$  D $-\frac{3}{2}$

7. In the figure below, $\overline{CR}$ is a diameter of $\odot O$. If $m\overline{ICR} = 319$, then $m\angle COI =$ ______.

   A 41  B 139  C 159.5  D 221
Chapter 3 Test

8. In the figure below, you cannot assume that ______.
   A. \( \overline{YL} \) and \( \overline{MT} \) intersect at point \( O \)
   B. \( \angle BOY \) is a right angle
   C. points \( M, O, \) and \( T \) are collinear
   D. \( \angle YOT \) and \( \angle LOM \) are vertical angles

9. Using the figure below, which statement justifies the conclusion that \( EF \parallel CD \)?
   A. definition of parallel lines
   B. If \( \ell \parallel m \) and \( m \parallel n \), then \( \ell \parallel n \).
   C. If \( \ell \perp m \) and \( m \perp n \), then \( \ell \parallel n \).
   D. If \( \ell \parallel m \) and \( m \perp n \), then \( \ell \perp n \).

10. Which of the following relationships is not transitive?
    A. \( A = B \)
    B. \( B < C \parallel D \)

11. Refer to the diagram below. What transformation maps \( \triangle ABC \) to \( \triangle A'B'C' \)?
   A. \( S_{-3} \)
   B. \( S_{2} \)
   C. \( S_{-2} \)
   D. \( S_{3} \)

12. Refer to the diagram below. What must be done to make the network traversable?
   A. Nothing. It is already traversable.
   B. Add an arc from \( B \) to \( E \).
   C. Add an arc from \( B \) to \( D \).
   D. Add an arc from \( E \) to \( C \).
13. Refer to the diagram below. What are the coordinates of $A'$ if $\triangle A'B'C' = R_{O,90^\circ}(\triangle ABC)$.

A' $(2, -1)$
B $(2, 1)$
C $(1, -2)$
D $(2, -1)$

14. Li’s house is 1.4 miles from school and Joe’s house is 2.7 miles from school. Which of the following is not a possible distance from Li’s house to Joe’s house.

A 1.3 miles
B 2.4 miles
C 4.1 miles
D 4.7 miles

15. What point is the intersection of $2x + 3y = -9$ and $-3x - 4y = 11$?

A $(-6, 1)$
B $(3, -5)$
C $(-5, 3)$
D $(1, -6)$

16. Hector made a U-turn in his car. How many degrees did his car rotate?

A 90
B 180
C 270
D 360

17. What is the equation for the line on the graph below?

A $y = -2x + 2$
B $y = \frac{1}{2}x + 2$
C $y = \frac{1}{2}x + 2$
D $y = -\frac{1}{2}x + 4$
18. Which of the following is a convex figure?

A  
B  
C  
D  

19. Refer to the diagram below. Given that \( \overrightarrow{EB} \) bisects \( \angle AEC \), 
\( m\angle DEC = 9x + 16 \), and \( m\angle BEC = 2x + 4 \), find \( m\angle AEB \).

A 12  
B 28  
C 56  
D 124  

20. Identify the figure that shows a counterexample to the following statement: *If two angles are complementary, then they are adjacent.*

A  
B  
C  
D  

21. Refer to the figure below. \( \overrightarrow{AB} \cap \overrightarrow{CB} = \) _____

A  \( \overrightarrow{BC} \)  
B  \( \overrightarrow{AC} \)  
C  point B  
D  \( \overrightarrow{AC} \)  

22. Let \( t = \text{a person is a vegetarian} \) and \( g = \text{a person is a vegan} \). 
According to the diagram below, which of the following statements is true?

A  \( g \implies t \)  
B  \( t \implies g \)  
C  \( t \iff g \)  
D  \( g \iff t \)
**Chapter 3 Test**

**Comprehensive Test**

23. Which of the following is *not* an undefined term in geometry?
   - A point
   - B segment
   - C line
   - D plane

24. Suppose you use a DGS to draw $\overline{LM}$ and point $P$ between $L$ and $M$. Which of the following equations will be true?
   - A $\overline{LM} + MP = LP$
   - B $\overline{LM} + LP = MP$
   - C $\overline{LP} + MP = \overline{LM}$
   - D $\overline{LP} = PM$

25. In which of the following is “fruit” part of the consequent?
   - A All fruit is good for you.
   - B Your food is good for you if it is fruit.
   - C If your food is fruit, then it is good for you.
   - D If your food is good for you, then it is fruit.

26. Which of the following is *not* a polygon?

   ![Polygon Options]

27. Jonah has friends from school and friends from Boy Scouts. He invites his friends from Boy Scouts that also go to his school to a bowling party. What best describes the group he has invited?
   - A the union of the two sets of friends
   - B the intersection of the two sets of friends
   - C the union and the intersection of the two sets of friends
   - D neither the union nor the intersection of the two sets of friends

28. Joelle leaves home and rides her bike 3 blocks west and 4 blocks north to get to the convenience store. If you model this situation with the coordinate plane with Joelle’s house as the origin, what will the coordinates of the convenience store be?
   - A (3, 4)
   - B (–3, 4)
   - C (–4, 3)
   - D (4, –3)

29. Which of the following is *not* true?
   - A $\overline{AG} = \overline{GA}$
   - B $\overline{\overline{AG}} = \overline{\overline{GA}}$
   - C $\overline{AG} = \overline{GA}$
   - D $\overline{AG} = \overline{GA}$

30. Why is the statement *Two angles are adjacent angles if and only if they share a common side* a bad definition for adjacent angles?
   - A It contains words that are not commonly understood and have not been defined earlier.
   - B It does not accurately describe what is being defined.
   - C It includes more information than is necessary.
   - D none of these
31. What would someone have to do to disprove the conjecture: *An apple a day keeps the doctor away?*
   A Eat an apple once a week and never get sick enough to need a doctor.
   B Eat an apple every day and never get sick enough to need a doctor.
   C Eat an apple every day and get sick enough to need a doctor once.
   D Eat an apple once a week and get sick enough to need a doctor once.

32. Which of the following terms would be above *isosceles triangle* if you constructed a hierarchy?
   A polygon       B equilateral triangle
   C circle        D quadrilateral

33. Refer to the figure below. If $q \parallel r$, which of the following angles will not necessarily have the same measure as $\angle 4$?
   A $\angle 2$
   B $\angle 5$
   C $\angle 6$
   D $\angle 8$