Name: _____



Circle the best answers.

1. What group of items is next in the pattern?



If the endpoints of a segment are (7, 4) and (9,8)

2. Find the length of the segment in SRF.

$$L = \sqrt{2^2 + 4^2} = \sqrt{4 + 16} = \sqrt{20} = 2\sqrt{5}$$

3. Find the midpoint of the segment.

$$M(\frac{7+9}{2}, \frac{4+8}{2}) = (\frac{16}{2}, \frac{12}{2}) = (8,6)$$

- 4. What is the inverse of "If there are clouds in the sky, then it is raining"?
 - A If it is raining, then there are clouds in the sky.
 - **B** If there are no clouds in the sky, then it is not raining.
 - C If it is raining, then there are no clouds in the sky.
 - D If it is not raining, then there are no clouds in the sky.
- 5. Use the Law of Detachment to reach a valid conclusion:

If a car is parked illegally, THEN IT GETS A TICKET (FOR EXAMPLE)

JOHN'S CARIS PARKED LLEGALLY.

JOHP'S CAR GETS A TICKET!

Circle the best answers.

- 6. What is the next item in the pattern? 1, -2, 4, -8, ...
 - A 16
- C 4
- B-4
- D 16
- 7. Which is a counterexample that shows that the following conjecture is false:

If $\angle 1$ and $\angle 2$ are supplementary, then both angles are congruent.

F m
$$\angle 1 = 45^{\circ}$$
 and m $\angle 2 = 45^{\circ}$

H m
$$\angle 1 = 90^{\circ}$$
 and m $\angle 2 = 90^{\circ}$

G m
$$\angle 1 = 53^{\circ}$$
 and m $\angle 2 = 127^{\circ}$

J
$$m \angle 1 = 100^{\circ} \text{ and } m \angle 2 = 100^{\circ}$$

8. Write "Three noncollinear points determine a plane" as a *conditional statement* in if-then form.

IF 3 POINTS ARE NONCOLLINEAR, THEN THEY DETERMINE A PLANE.

9. What is the converse of the conditional statement

"If a number is divisible by 6, then it is divisible by 3"

- A If a number is divisible by 3, then it is divisible by 6.
- **B** If a number is not divisible by 6, then it is not divisible by 3.
- C If a number is not divisible by 3, then it is not divisible by 6.
- **D** If a number is not divisible by 6, then it is divisible by 3.
- 10. Given: If one angle of a triangle is a right angle, then the other two angles are acute.

A triangle has a right angle.

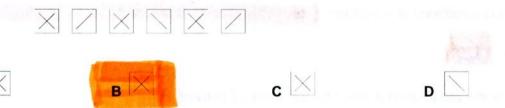
What conclusion can be drawn?

- F One of the other two angles is 90°.
- G One of the other two angles is obtuse.
- H All three angles are acute.

J Not here.

Circle the best answers.

11. What is the next item in the pattern?



- 12. Which conjecture is always true?
 - F Intersecting lines form 4 linear pairs of angles.
 - G Intersecting lines form 4 pairs of non-adjacent angles.
 - **H** Intersecting lines form 4 pairs of congruent angles.
 - J Not here
- 13. Identify the *hypothesis* and *conclusion* of the statement "There are clouds in the sky if it is raining"
 - H: IT IS RAIDING
 - C: THERE ARE CLOUDS IN THE SKY
 - 14. Find the next item in the pattern. 2, 5, 7, 12, 19,
 - **15.** Show that the conjecture is false by **drawing** a counterexample:

 "If two angles are supplementary, then they are also adjacent."



16. Write the *contrapositive* of the conditional statement "If two angles are congruent, then they have the same measure."

THEN THEY ARE NOT CONGRUENT.

17. Is this a valid syllogism?

Given: If a point is a midpoint of a segment, then it is between the two endpoints.

If a point is between two endpoints, then all three points are collinear.

If a point is a midpoint of a segment, then it divides the segment into two congruent segments.

Yes/No:

- 18. Determine if the conjecture is valid by the Law of Detachment:
 - a) If a ray bisects an angle, two congruent angles are formed.
 - b) YW bisects ∠XYZ.
 - c) $\angle XYW \cong \angle WYZ$

Yes/No:

19. Identify the hypothesis and conclusion of the statement:

"An angle with a measure of less than 90 is an acute angle."

H: AN ANGLE HAS A MEASURE OF LESS THAN 90.

C: THE ANGLE IS ACOTE

20. Write the inverse of the conditional statement:

"If the sum of two whole numbers is even, then both numbers are even."

THEN BOTH NUMBERS ARE NOT EVEN,