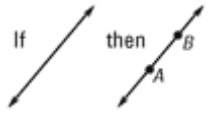
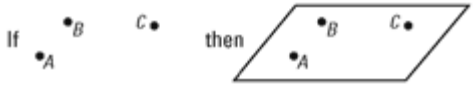
Name: _____ **Class:** _____ **Date:** _____ **ID: A**

Geom (Busch/Newgard) Ch2. Review You MUST use a fresh sheet of paper to record your answers. You may not use this on the summative.

1. (1 point) State a counterexample to disprove the following conjecture:
   A square is a figure with four right angles.
2. (1 point) Given the following statements, can you conclude that Marvin listens to the radio on Monday night?
   (1) If it is Monday night, Marvin stays at home.
   (2) If Marvin stays at home, he listens to the radio.
3. (1 point) Is the statement true or false? Explain your reasoning.
   Intersecting lines always intersect at right angles.
4. (1 point) Given that:
   i. Tawana bought a new computer.
   ii. All computers depreciate in value.
   What conclusion can be logically deduced?

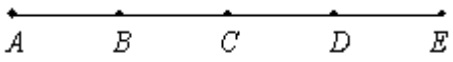
   From the given true statements, make a valid conclusion:
5. (1 point) If Ahmed can get time off work, he will go to Belize.
   If Ahmed goes to Belize, Jake will go with him.
   Ahmed will get time off work.

   State the postulate indicated by the diagram.
6. (1 point) 

7. (1 point) 

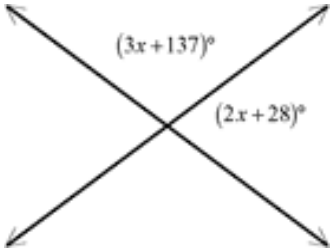
   Use inductive reasoning to find the next two numbers in each pattern.
8. (1 point) 2, 4, 8, 16, __, __
9. (1 point) Name the property which justifies the following conclusion:
   Given: $x - 10 = 13$
   Conclusion: $x = 23$

   Identify the property that makes the statement true.
10. (1 point) If $XY = MN$, then $MN = XY$.
11. (1 point) If $m\angle P = m\angle R$ and $m\angle R = m\angle T$, then $m\angle P = m\angle T$.
12. (1 point) If $m\angle 1 + m\angle 2 = 25°$ and $m\angle 1 = 9°$, then $9^\circ + m\angle 2 = 25^\circ$.
13. (1 point) Identify the property of congruence.
    $\angle Q \cong \angle Q$.
14. (1 point) Provide the reasons for each statement in the proof.
    Given: $AB = DE$
    Prove: $AD = BE$



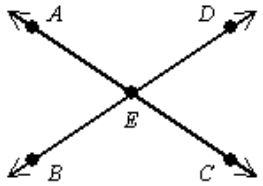
Statement	Reason
$AB = DE$	?
$AB + BD = DE + BD$	?
$AB + BD = AD, DE + BD = BE$	?
$AD = BE$	?

15. (1 point) Solve for x.



16. (1 point) $\angle 1$ and $\angle 2$ form a linear pair. If $m\angle 2 = 67°$, what is $m\angle 1$?

17. (1 point) In the figure shown, $m\angle AED = 103°$. Which of the following statements is false?



a. $\angle BEC$ and $\angle CED$ are adjacent angles.
b. $m\angle BEC = 103°$
c. $m\angle AEB = 87°$
d. $\angle AEB$ and $\angle DEC$ are vertical angles.

18. (1 point) Give the reason for the last statement in the proof.

Statement	Reason
$\angle 1$ is a supplement of $\angle 2$	Given
$\angle 3$ is a supplement of $\angle 4$	Given
$\angle 2 \cong \angle 4$	Given
$\angle 1 \cong \angle 3$	?

19. (1 point) $\angle 1$ and $\angle 2$ are supplementary angles. $\angle 1$ and $\angle 3$ are vertical angles. If $m\angle 2 = 72°$, what is $m\angle 3$?

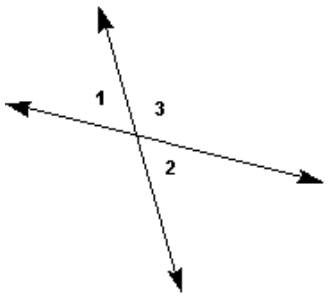
20. (1 point) $\angle 1$ and $\angle 2$ are supplementary angles. $\angle 1$ and $\angle 3$ are vertical angles. $m\angle 2=67°$. Find $m\angle 3$.

21. (1 point) Provide the reasons for statements 3 and 5 in the proof.
Given: $\angle 1$ and $\angle 2$ form a linear pair; $m\angle 2=100°$
Prove: $m\angle 1=80°$

Statements	Reasons
1. $m\angle 2 = 100°$	1. Given
2. $\angle 1$ and $\angle 2$ are a linear pair.	2. Given
3. $m\angle 1 + m\angle 2 = 180°$	3. ?
4. $m\angle 1 + 100° = 180°$	4. Substitution Property of Equality
5. $m\angle 1 = 80°$	5. ?

Write a two-column proof.

22. (1 point) Given: $\angle 1$ and $\angle 2$ are vertical angles; $\angle 1$ and $\angle 3$ form a linear pair
Prove: $\angle 2$ and $\angle 3$ are supplementary angles



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Answer Section

1. Rectangles also have four right angles.
2. yes
3. False; lines can intersect at any angle.
4. Tawana's computer will depreciate in value.
5. Ahmed will go to Belize, and Jake will go with him.
6. A line contains at least two points.
7. Through any three noncollinear points there exists exactly one plane.
8. 32, 64
9. Addition property of equality
10. Symmetric Property of Equality
11. Transitive Property of Equality
12. Substitution Property of Equality
13. Reflexive Property of Congruence

14.

Statement	Reason
$AB = DE$	Given
$AB + BD = DE + BD$	Addition property of equality
$AB + BD = AD, DE + BD = BE$	Segment addition postulate
$AD = BE$	Substitution property of equality

15. 3
16. 113°
17. C
18. Congruent Supplements Theorem
19. 108°
20. 113°
21. 3. Linear Pair Postulate
    5. Subtraction Property of Equality

22.

Statement	Reason
1. $\angle 1$ and $\angle 2$ are vertical angles	1. Given
2. $m\angle 1 = m\angle 2$	2. Vertical angles congruence theorem
3. $\angle 1$ and $\angle 3$ form a linear pair	3. Given
4. $m\angle 1 + m\angle 3 = 180°$	4. Linear Pair Postulate
5. $m\angle 2 + m\angle 3 = 180°$	5. Substitution property of equality
6. $\angle 2$ and $\angle 3$ are supplementary	6. Definition of supplementary angles