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

REVIEW Pre AICE Math 2 Chapter 2

Multiple Choice
Identify the choice that best completes the statement or answers the question.

____ 1. Based on the pattern, what are the next two terms of the sequence?
6, 10, 14, 18, . . .
a. 72, 288 b. 22, 26 c. 26, 30 d. 22, 288

____ 2. What conjecture can you make about the twenty-first term in the pattern A, B, A, C, A, B, A, C?
a. The twenty-first term is C.
b. The twenty-first term is A.
c. The twenty-first term is B.
d. There is not enough information.

____ 3. Alfred is practicing typing. The first time he tested himself, he could type 40 words per minute. After practicing for a week, he could type 46 words per minute. After two weeks he could type 52 words per minute. Based on this pattern, predict how fast Alfred will be able to type after 4 weeks of practice.
a. 58 words per minute
b. 64 words per minute
c. 62 words per minute
d. 52 words per minute

____ 4. What is the conclusion of the following conditional?
A number is divisible by 9 if the sum of the digits of the number is divisble by 9.
a. The sum of the digits of the number is divisble by 9.
b. The number is divisible by 9.
c. The number is odd.
d. If the sum of the digits of a number is divisble by 9, then the number is divisible by 9.

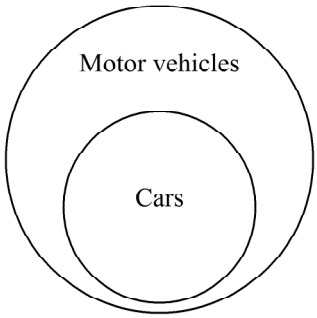
____ 5. Identify the hypothesis and conclusion of this conditional statement:
If today is Wednesday, then tomorrow is Thursday.
a. Hypothesis: Today is Wednesday.
Conclusion: Tomorrow is Thursday.
b. Hypothesis: Tomorrow is Thursday.
Conclusion: Today is Wednesday.
c. Hypothesis: Tomorrow is not Thursday.
Conclusion: Today is Wednesday.
d. Hypothesis: Today is Wednesday.
Conclusion: Tomorrow is not Thursday.

____ 6. Another name for an *if-then* statement is a ____. Every conditional has two parts. The part following *if* is the ____ , and the part following *then* is the ____.
a. conditional; conclusion; hypothesis
b. hypothesis; conclusion; conditional
c. conditional; hypothesis; conclusion
d. hypothesis; conditional; conclusion

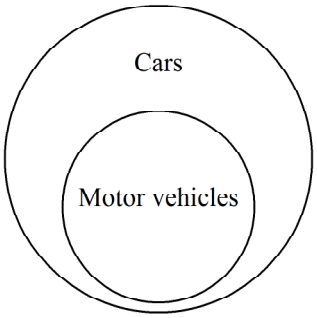
____ 7. Write this statement as a conditional in *if-then* form:
All triangles have three sides.
a. If a triangle has three sides, then all triangles have three sides.
b. If a figure has three sides, then it is not a triangle.
c. If a figure is a triangle, then all triangles have three sides.
d. If a figure is a triangle, then it has three sides.

____ 8. Draw a Venn diagram to illustrate this conditional:
Cars are motor vehicles.

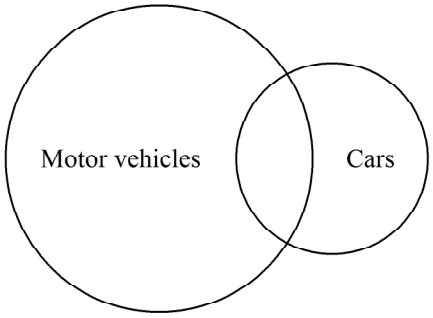
a.



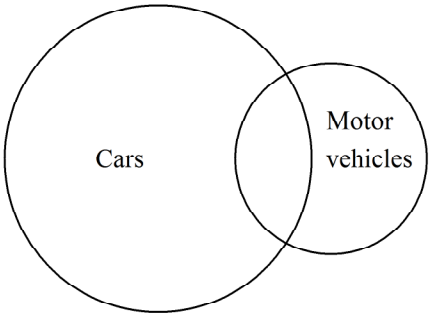
c.



b.



d.



____ 9. A conditional can have a ____ of *true* or *false*.

a. hypothesis
b. truth value
c. counterexample
d. conclusion

____ 10. What is the converse of the following conditional?
If a point is in the first quadrant, then its coordinates are positive.

a. If a point is in the first quadrant, then its coordinates are positive.
b. If the coordinates of a point are not positive, then the point is not in the first quadrant.
c. If the coordinates of a point are positive, then the point is in the first quadrant.
d. If a point is not in the first quadrant, then the coordinates of the point are not positive.

____ 11. For the following true conditional statement, write the converse. If the converse is also true, combine the statements as a biconditional.
If $x = 3$, then $x^2 = 9$.

a. If $x^2 = 3$, then $x = 9$. False
b. If $x^2 = 9$, then $x = 3$. False
c. If $x^2 = 9$, then $x = 3$. True; $x^2 = 9$ if and only if $x = 3$.
d. If $x^2 = 9$, then $x = 3$. True; $x = 3$ if and only if $x^2 = 9$.

____ 12. When a conditional and its converse are true, you can combine them as a true ____.

a. counterexample
b. biconditional
c. unconditional
d. hypothesis

____ 13. Is the following definition of *perpendicular* reversible? If yes, write it as a true biconditional.
Two lines that intersect at right angles are perpendicular.
a. The statement is not reversible.
b. Yes; if two lines intersect at right angles, then they are perpendicular.
c. Yes; if two lines are perpendicular, then they intersect at right angles.
d. Yes; two lines intersect at right angles if (and only if) they are perpendicular.

____ 14. One way to show that a statement is NOT a good definition is to find a ____.
a. converse
b. conditional
c. biconditional
d. counterexample

____ 15. Which statement is the Law of Detachment?
a. If $p \rightarrow q$ is a true statement and q is true, then p is true.
b. If $p \rightarrow q$ is a true statement and q is true, then $q \rightarrow p$ is true.
c. If $p \rightarrow q$ and $q \rightarrow r$ are true, then $p \rightarrow r$ is a true statement.
d. If $p \rightarrow q$ is a true statement and p is true, then q is true.

____ 16. If possible, use the Law of Detachment to draw a conclusion from the two given statements. If not possible, write *not possible*.
Statement 1: If $x = 5$, then $6x - 8 = 22$.
Statement 2: $x = 5$
a. If $6x - 8 = 22$, then $x = 5$.
b. $x = 5$
c. $6x - 8 = 22$
d. not possible

____ 17. Use the Law of Detachment to draw a conclusion from the two given statements.

If two angles are supplementary, then the sum of their measures is 180°.

$\angle H$ and $\angle G$ are supplementary.
a. $\angle H$ is congruent to $\angle G$.
b. $m\angle H \neq m\angle G$
c. $m\angle H + m\angle G = 180$
d. $m\angle H + m\angle G = 90$

____ 18. Use the Law of Detachment to draw a conclusion from the two given statements. If not possible, write *not possible*.
The doctor recommends rest if the patient has the flu.
The doctor recommends rest.
a. The patient does not have the flu.
b. If the doctor recommends rest, the patient has the flu.
c. The patient has the flu.
d. not possible

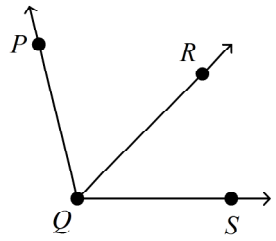
____ 19. Use the Law of Syllogism to draw a conclusion from the two given statements.
If it is Friday, then there is a math quiz.
If there is a math quiz, then Jason is happy.
a. If it is Friday, then Jason is happy.
b. It is Friday.
c. If it is not Friday, then Jason is not happy.
d. Jason is happy.

____ 20. Which statement is the Law of Syllogism?
a. If $p \rightarrow q$ is a true statement and p is true, then q is true.
b. If $p \rightarrow q$ is a true statement and q is true, then p is true.
c. If $p \rightarrow q$ and $q \rightarrow r$ are true statements, then $p \rightarrow r$ is a true statement.
d. If $p \rightarrow q$ and $q \rightarrow r$ are true statements, then $r \rightarrow p$ is a true statement.

____ 21. Use the Law of Syllogism to draw a conclusion from the two given statements.
If a number is a multiple of 18,then it is a multiple of 9.
If a number is a multiple of 9, then it is a multiple of 3.
a. If a number is a multiple of 18, then it is a multiple of 3.
b. The number is a multiple of 9.
c. If a number is not a multiple of 3, then the number is not a multiple of 18.
d. The number is a multiple of 3.

____ 22. Use the Law of Detachment and the Law of Syllogism to draw a conclusion from the three given statements.
If it is Friday night, then there is a football game.
If there is a football game, then Josef is wearing his school colors.
It is Friday night.
a. Josef is wearing his school colors.
b. If it is Friday night, then Josef is wearing his school colors.
c. If it is not Friday night, then Josef is not wearing his school colors.
d. There is a football game.

____ 23. What is the value of x? Identify the missing justifications.
$m\angle PQR = x - 3$, $m\angle SQR = x - 11$, and $m\angle PQS = 100$.



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$m\angle PQR + m\angle SQR = m\angle PQS$	**a.** _____
$x - 3 + x - 11 = 100$	**b.** Substitution Property
$2x - 14 = 100$	**c.** Simplify
$2x = 114$	**d.** _____
$x = 57$	**e.** Division Property of Equality

a. Angle Addition Postulate; Subtraction Property of Equality
b. Angle Addition Postulate; Addition Property of Equality
c. Protractor Postulate; Addition Property of Equality
d. Protractor Postulate; Subtraction Property of Equality

____ 24. $\overline{BD}$ bisects $\angle ABC$. $m\angle ABC = 9x$. $m\angle ABD = 4x + 32$. Find $m\angle DBC$.
a. 96 b. 288 c. 64 d. 224

____ 25. Which statement is an example of the Subtraction Property of Equality?

a. If $c = d$ then $c + e = d + e$.
b. $c = d$
c. If $c = d$ then $c - e = d - e$.
d. If $c = d$ then $c \cdot e = d \cdot e$.

Use the given property to complete the statement.

____ 26. Transitive Property of Congruence

If $\overline{CD} \cong \overline{EF}$ and $\overline{EF} \cong \overline{GH}$, then _____.

a. $\overline{EF} \cong \overline{EF}$
b. $\overline{CD} \cong \overline{EF}$
c. $\overline{CD} \cong \overline{GH}$
d. $\overline{EF} \cong \overline{GH}$

____ 27. Substitution Property of Equality

If $y = -2$ and $6x + y = 9$, then _____.

a. $-2 + y = 9$
b. $6x - 2 = 9$
c. $6x + 2 = 9$
d. $6(-2) + y = 9$

____ 28. Complete the two-column proof.

Given: $\frac{x}{5} + 6 = 9$

Prove: $x = 15$

$\frac{x}{5} + 6 = 9$ a. _____

$\frac{x}{5} = 3$ b. _____

$x = 15$ c. _____

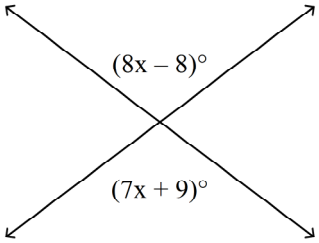
a. a. Given
b. Addition Property of Equality
c. Multiplication Property of Equality

b. a. Given
b. Subtraction Property of Equality
c. Division Property of Equality

c. a. Given
b. Addition Property of Equality
c. Division Property of Equality

d. a. Given
b. Subtraction Property of Equality
c. Multiplication Property of Equality

____ 29. What is the value of x?



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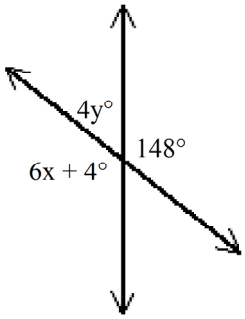
a. 52 b. –17 c. 128 d. 17

____ 30. Find the values of x and y.



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a. $x = 32, y = 148$
b. $x = 24, y = 8$
c. $x = 8, y = 24$
d. $x = 148, y = 32$

____ 31. Name the Property of Congruence that justifies the statement:
If $\overline{RS} \cong \overline{UW}$, then $\overline{UW} \cong \overline{RS}$.

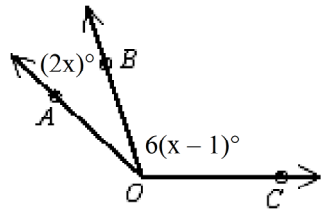
a. Transitive Property
b. Symmetric Property
c. Reflexive Property
d. none of these

____ 32. Name the Property of Congruence that justifies this statement:
If $\angle J \cong \angle K$ and $\angle K \cong \angle L$, then $\angle J \cong \angle L$.

a. Symmetric Property
b. Transitive Property
c. Reflexive Property
d. none of these

Short Answer

33. What is the value of x? Identify the missing justifications.



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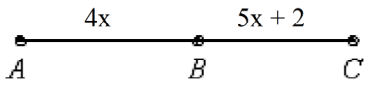
$m\angle AOC = 138$

$m\angle AOB + m\angle BOC = m\angle AOC$	a. _____
$2x + 6(x - 1) = 138$	b. _____
$2x + 6x - 6 = 138$	c. _____
$8x - 6 = 138$	d. _____
$8x = 144$	e. _____
$x = 18$	f. _____

34. What is the value of x? Justify each step.
$AC = 20$



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$AB + BC = AC$	a. _____
$4x + 5x + 2 = 20$	b. _____
$9x + 2 = 20$	c. _____
$9x = 18$	d. _____
$x = 2$	e. _____

Essay

35. What are the converse, inverse, and contrapositive of the following true conditional? What are the truth values of each? If a statement is false, give a counterexample.
If a figure is a rectangle, then it is a parallelogram.