Name: _____

G.CO.C.9: Inverse, Converse and Contrapositive

1 What is the inverse of the statement "If two triangles are not similar, their corresponding angles are not congruent"?
   1) If two triangles are similar, their corresponding angles are not congruent.
   2) If corresponding angles of two triangles are not congruent, the triangles are not similar.
   3) If two triangles are similar, their corresponding angles are congruent.
   4) If corresponding angles of two triangles are congruent, the triangles are similar.

2 What is the inverse of the statement "If it is sunny, I will play baseball"?
   1) If I play baseball, then it is sunny.
   2) If it is not sunny, I will not play baseball.
   3) If I do not play baseball, then it is not sunny.
   4) I will play baseball if and only if it is sunny.

3 What is the inverse of the statement "If Mike did his homework, then he will pass this test"?
   1) If Mike passes this test, then he did his homework.
   2) If Mike does not pass this test, then he did not do his homework.
   3) If Mike does not pass this test, then he only did half his homework.
   4) If Mike did not do his homework, then he will not pass this test.

4 What is the inverse of the statement "If Julie works hard, then she succeeds"?
   1) If Julie succeeds, then she works hard.
   2) If Julie does not succeed, then she does not work hard.
   3) If Julie works hard, then she does not succeed.
   4) If Julie does not work hard, then she does not succeed.

5 What is the inverse of the statement "If I do not buy a ticket, then I do not go to the concert"?
   1) If I buy a ticket, then I do not go to the concert.
   2) If I buy a ticket, then I go to the concert.
   3) If I go to the concert, then I buy a ticket.
   4) If I do not go to the concert, then I do not buy a ticket.

6 Which statement is the inverse of "If the waves are small, I do not go surfing"?
   1) If the waves are not small, I do not go surfing.
   2) If I do not go surfing, the waves are small.
   3) If I go surfing, the waves are not small.
   4) If the waves are not small, I go surfing.

7 Which statement is the inverse of "If $x + 3 = 7$, then $x = 4$"?
   1) If $x = 4$, then $x + 3 = 7$.
   2) If $x \neq 4$, then $x + 3 \neq 7$.
   3) If $x + 3 \neq 7$, then $x \neq 4$.
   4) If $x + 3 = 7$, then $x \neq 4$.

8 What is the converse of the statement "If it is sunny, I will go swimming"?
   1) If it is not sunny, I will not go swimming.
   2) If I do not go swimming, then it is not sunny.
   3) If I go swimming, it is sunny.
   4) I will go swimming if and only if it is sunny.

9 Which statement is the converse of "If it is a 300 ZX, then it is a car"?
   1) If it is not a 300 ZX, then it is not a car.
   2) If it is not a car, then it is not a 300 ZX.
   3) If it is a car, then it is a 300 ZX.
   4) If it is a car, then it is not a 300 ZX.

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10 What is the converse of the statement "If it is Sunday, then I do not go to school"?
1) If I do not go to school, then it is Sunday.
2) If it is not Sunday, then I do not go to school.
3) If I go to school, then it is not Sunday.
4) If it is not Sunday, then I go to school.

11 What is the converse of the statement "If Alicia goes to Albany, then Ben goes to Buffalo"?
1) If Alicia does not go to Albany, then Ben does not go to Buffalo.
2) Alicia goes to Albany if and only if Ben goes to Buffalo.
3) If Ben goes to Buffalo, then Alicia goes to Albany.
4) If Ben does not go to Buffalo, then Alicia does not go to Albany.

12 What is the converse of the statement "If the Sun rises in the east, then it sets in the west"?
1) If the Sun does not set in the west, then it does not rise in the east.
2) If the Sun does not rise in the east, then it does not set in the west.
3) If the Sun sets in the west, then it rises in the east.
4) If the Sun rises in the west, then it sets in the east.

13 What is the converse of the statement "If Bob does his homework, then George gets candy"?
1) If George gets candy, then Bob does his homework.
2) Bob does his homework if and only if George gets candy.
3) If George does not get candy, then Bob does not do his homework.
4) If Bob does not do his homework, then George does not get candy.

14 Which statement is the converse of "If the sum of two angles is 180°, then the angles are supplementary"?
1) If two angles are supplementary, then their sum is 180°.
2) If the sum of two angles is not 180°, then the angles are not supplementary.
3) If two angles are not supplementary, then their sum is not 180°.
4) If the sum of two angles is not 180°, then the angles are supplementary.

15 What is the converse of the statement "If x is an even integer, then $(x+1)$ is an odd integer"?
1) x is not an even integer if and only if $(x+1)$ is not an odd integer.
2) x is an even integer if and only if $(x+1)$ is an odd integer.
3) If $(x+1)$ is not an odd integer, then x is not an even integer.
4) If $(x+1)$ is an odd integer, then x is an even integer.

16 What is the converse of the statement "If $a^2+b^2=c^2$, then $\triangle ABC$ is a right triangle"?
1) If $\triangle ABC$ is a right triangle, then $a^2+b^2=c^2$.
2) $a^2+b^2=c^2$ if, and only if, $\triangle ABC$ is a right triangle.
3) If $\triangle ABC$ is not a right triangle, then $a^2+b^2=c^2$.
4) If $a^2+b^2=c^2$, then $\triangle ABC$ is not a right triangle.

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17 What is the converse of "If an angle measures 90 degrees, then it is a right angle"?
1) If an angle is a right angle, then it measures 90 degrees.
2) An angle is a right angle if it measures 90 degrees.
3) If an angle is not a right angle, then it does not measure 90 degrees.
4) If an angle does not measure 90 degrees, then it is not a right angle.

18 Lines m and n are in plane $\mathcal{A}$. What is the converse of the statement "If lines m and n are parallel, then lines m and n do not intersect"?
1) If lines m and n are not parallel, then lines m and n intersect.
2) If lines m and n are not parallel, then lines m and n do not intersect
3) If lines m and n intersect, then lines m and n are not parallel.
4) If lines m and n do not intersect, then lines m and n are parallel.

19 The converse of the statement "If a triangle has one right angle, the triangle has two acute angles" is
1) If a triangle has two acute angles, the triangle has one right angle.
2) If a triangle has one right angle, the triangle does not have two acute angles.
3) If a triangle does not have one right angle, the triangle does not have two acute angles.
4) If a triangle does not have two acute angles, the triangle does not have one right angle.

20 What is the contrapositive of the statement, "If I am tall, then I will bump my head"?
1) If I bump my head, then I am tall.
2) If I do not bump my head, then I am tall.
3) If I am tall, then I will not bump my head.
4) If I do not bump my head, then I am not tall.

21 What is the contrapositive of the statement "If I study, then I pass the test"?
1) I pass the test if I study.
2) If I do not study, then I do not pass the test.
3) If I do not pass the test, then I do not study.
4) If I pass the test, then I study.

22 Given the statement, "If a number has exactly two factors, it is a prime number," what is the contrapositive of this statement?
1) If a number does not have exactly two factors, then it is not a prime number.
2) If a number is not a prime number, then it does not have exactly two factors.
3) If a number is a prime number, then it has exactly two factors.
4) A number is a prime number if it has exactly two factors.

23 Given: "If a polygon is a triangle, then the sum of its interior angles is 180°." What is the contrapositive of this statement?
1) "If the sum of the interior angles of a polygon is not 180°, then it is not a triangle."
2) "A polygon is a triangle if and only if the sum of its interior angles is 180°."
3) "If a polygon is not a triangle, then the sum of the interior angles is not 180°."
4) "If the sum of the interior angles of a polygon is 180°, then it is a triangle."

G.CO.C.9: Inverse, Converse and Contrapositive
Answer Section

1	ANS: 3	REF: 011028ge
2	ANS: 2	REF: 060006a
3	ANS: 4	REF: 010303a
4	ANS: 4	REF: 060317a
5	ANS: 2	REF: 080416a
6	ANS: 4	REF: 010616a
7	ANS: 3	REF: 061526ge
8	ANS: 3	REF: 080014a
9	ANS: 3	REF: 080116a
10	ANS: 1	REF: 060520a
11	ANS: 3	REF: 080521a
12	ANS: 3	REF: 060717a
13	ANS: 1	REF: 061009ge
14	ANS: 1	REF: 010415a
15	ANS: 4	REF: 060816a
16	ANS: 1	REF: 080813a
17	ANS: 1	REF: 061314ge
18	ANS: 4	REF: 081318ge
19	ANS: 1	REF: 011605ge
20	ANS: 4	REF: 060913ge
21	ANS: 3	REF: 080427a
22	ANS: 2	REF: 011517ge
23	ANS: 1	REF: 081513ge