Conditional statements: converse, inverse and contrapositive worksheet – Grade 10

Grade 10 · Mixed level · 20 questions · **Version X7734**

Name: _____ Date: _____ Score: ___ / 20

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1. If the month is July, then the month has 31 days. What is the conclusion?
   A. The month is not July **B.** The month does not have 31 days **C.** The month is July
   D. The month has 31 days

2. If the shape is a square, then the shape is a rectangle. What is the conclusion?
   A. The shape is a square **B.** The shape is a rectangle **C.** The shape is not a rectangle
   D. The shape is not a square

3. What is the inverse of this statement? If the angle measures 30°, then the angle is acute.
   A. If the angle measures 30°, then the angle is acute.
   B. If the angle is not acute, then the angle does not measure 30°.
   C. If the angle does not measure 30°, then the angle is not acute.
   D. If the angle is acute, then the angle measures 30°.

4. If the number is even, then the number is divisible by 2. What is the conclusion?
   A. The number is not even **B.** The number is not divisible by 2
   C. The number is divisible by 2 **D.** The number is even

5. If the number is divisible by 6, then the number is divisible by 3. What is the hypothesis?
   A. The number is divisible by 3 **B.** The number is divisible by 6
   C. The number is not divisible by 6 **D.** The number is not divisible by 3

6. Find the converse of this statement. If the triangle is equilateral, then the triangle is isosceles.
   A. If the triangle is not isosceles, then the triangle is not equilateral.
   B. If the triangle is equilateral, then the triangle is isosceles.
   C. If the triangle is not equilateral, then the triangle is not isosceles.
   D. If the triangle is isosceles, then the triangle is equilateral.

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7. Work out the inverse of this statement. If today is Saturday, then tomorrow is Sunday.

   A. If today is not Saturday, then tomorrow is not Sunday.

   B. If tomorrow is not Sunday, then today is not Saturday.

   C. If tomorrow is Sunday, then today is Saturday.

   D. If today is Saturday, then tomorrow is Sunday.

8. This statement is true: If you live in Toronto, then you live in Ontario. Which other statement must also be true?

   A. If you live in Ontario, then you live in Toronto.

   B. If you do not live in Toronto, then you do not live in Ontario.

   C. If you do not live in Ontario, then you do not live in Toronto.

9. This statement is true: If the triangle is equilateral, then the triangle is isosceles. Is its converse true?

   A. Not always **B.** Yes, always

10. This statement is true: If the team wins the final, then the team lifts the trophy. Is its converse true?

    A. Not always **B.** Yes, always

11. Which statement always has the same truth value as this one? If the shape is a square, then the shape is a rectangle.

    A. If the shape is a rectangle, then the shape is a square. **B.** None of these

    C. If the shape is not a rectangle, then the shape is not a square.

    D. If the shape is not a square, then the shape is not a rectangle.

12. This statement is true: If the number ends in 0, then the number is even. Is its converse true?

    A. Not always **B.** Yes, always

13. This statement is true: If the shape is a square, then the shape is a rectangle. Is its converse true?

    A. Not always **B.** Yes, always

14. This statement is true: If the number is divisible by 6, then the number is divisible by 3. Which other statement must also be true?

    A. If the number is not divisible by 6, then the number is not divisible by 3.

    B. If the number is not divisible by 3, then the number is not divisible by 6.

    C. If the number is divisible by 3, then the number is divisible by 6.

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15. Knowing that "the month is July" is enough to be sure that "the month has 31 days". Which if-then statement says this?

    A. If the month is not July, then the month does not have 31 days.

    B. If the month is July, then the month has 31 days.

    C. If the month has 31 days, then the month is July.

16. Isla says: "If the triangle is isosceles, then the triangle is equilateral." Which case shows that Isla is wrong?

    A. The triangle is not equilateral, and the triangle is not isosceles

    B. The triangle is equilateral, and the triangle is isosceles **C.** A triangle with sides 5, 5, 8

17. A notice says: If it is raining, then the ground outside is wet. Which of these is its contrapositive?

    A. If it is not raining, then the ground outside is not wet.

    B. If the ground outside is not wet, then it is not raining.

    C. If the ground outside is wet, then it is raining.

18. Knowing that "it is raining" is enough to be sure that "the ground outside is wet". Which if-then statement says this?

    A. If the ground outside is wet, then it is raining.

    B. If it is raining, then the ground outside is wet.

    C. If it is not raining, then the ground outside is not wet.

19. For this true statement, is the inverse true? If it is raining, then the ground outside is wet.

    A. Not always **B.** Yes, always

20. Maya says: "If you live in Ontario, then you live in Toronto." Which case shows that Maya is wrong?

    A. Someone who lives in Ottawa **B.** You live in Toronto, and you live in Ontario

    C. You do not live in Toronto, and you do not live in Ontario

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Answer key · Version X7734

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1. **D (The month has 31 days)**
2. **B (The shape is a rectangle)**
3. **C (If the angle does not measure 30°, then the angle is not acute.)**
4. **C (The number is divisible by 2)**
5. **B (The number is divisible by 6)**
6. **D (If the triangle is isosceles, then the triangle is equilateral.)**
7. **A (If today is not Saturday, then tomorrow is not Sunday.)**
8. **C (If you do not live in Ontario, then you do not live in Toronto.)**
9. **A (Not always)**
10. **A (Not always)**
11. **C (If the shape is not a rectangle, then the shape is not a square.)**
12. **A (Not always)**
13. **A (Not always)**
14. **B (If the number is not divisible by 3, then the number is not divisible by 6.)**
15. **B (If the month is July, then the month has 31 days.)**
16. **C (A triangle with sides 5, 5, 8)**
17. **B (If the ground outside is not wet, then it is not raining.)**
18. **B (If it is raining, then the ground outside is wet.)**
19. **A (Not always)**
20. **A (Someone who lives in Ottawa)**

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