ALBERTA MATH 10C · UNIT 4 · 25 QUESTIONS

Relations and Functions — Practice Test

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

1 **Which set of ordered pairs represents a function?**

- A {(2, 5), (3, 5), (4, 5), (5, 5)}
- B {(1, 3), (1, 4), (2, 6), (3, 8)}
- C {(0, 1), (0, 2), (0, 3), (0, 4)}
- D {(-2, 7), (-2, -7), (3, 7), (4, 7)}

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2 **The domain of the relation {(-3, 4), (0, -1), (2, 4), (5, 7)} is**

- A {-1, 4, 7}
- B {-3, -1, 0, 2}
- C {-3, 0, 2, 4, 5}
- D {-3, 0, 2, 5}

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3 **The range of the relation {(1, -2), (3, 0), (3, 5), (6, -2)} is**

A {1, 3, 6}

B {-2, 0, 3, 5}

C {-2, 0, 5}

D {0, 5, 6}

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4 **If f(x) = 3x - 5, then f(4) is**

A 2

B 12

C 17

D 7

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5 **The vertical line test states that a graph represents a function if every vertical line drawn on the graph intersects the graph**

A At most once

B Exactly once

C At least once

D More than once

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6 **If $f(x) = x^2 - 3x + 1$, then the value of $f(-2)$ is ____**

ANSWER _____

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7 **A mapping pairs 1 → 4, 2 → 4, 3 → 7, and 4 → 9. This relation is a function because**

- **A** Each output has exactly one input
- **B** Each input has exactly one output
- **C** No output value is repeated
- **D** Every input and output is different

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8 **The graph shown is a line segment. The domain of the function is**

- **A** $-2 \leq x \leq 4$
- **B** $-1 \leq y \leq 3$
- **C** $-2 < x < 4$
- **D** $-1 < y < 3$

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9 **The graph shown gives the distance, d km, that a cyclist is from home over time, t h. The cyclist was stopped during the interval**

- **A** from 0 h to 2 h
- **B** from 3 h to 5 h
- **C** The cyclist was never stopped
- **D** from 2 h to 3 h

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10 **If f(x) = 2x + 7 and f(x) = 19, then the value of x is ____**

ANSWER _____

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11 **Which of the following relations is NOT a function?**

- **A** $x = 3$
- **B** $y = 2x + 1$
- **C** $\{(-1, 2), (0, 2), (1, 2), (2, 2)\}$
- **D** $y = x^2 - 3$

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12 **Which statement is true about the relation {(-4, 1), (-1, 3), (0, 3), (2, -2), (4, 0)}?**

- **A** It is not a function because the output 3 is repeated
- **B** Its range is {-2, 0, 1, 3}
- **C** Its domain is {-2, 0, 1, 3}
- **D** It is not a function because -1 and 0 have the same output

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13 **If $g(x) = x^2 - 4x$, then the value of $g(-3)$ is ____**

ANSWER _____

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14 **The graph shown gives the volume of water in a tank, V litres, over time, t minutes, as the tank drains. The x-intercept of the graph represents**

A The initial volume of water in the tank

B The rate at which the water drains

C The time when the tank is empty

D The time when the tank is full

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15 If f(x) = 5 - 2x, then the value of f(-1) - f(2) is

- A 4
- B 8
- C 6
- D -6

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16 A relation has domain {-2, -1, 0, 1, 2} and is defined by $y = x^2$. The number of distinct values in the range of the relation is ____

ANSWER _____

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17 **A taxi fare depends on the distance travelled. In this relation, the independent variable is**

A The fare charged

B The distance travelled

C The taxi driver

D The time of day

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18 **Which situation is best represented by a discrete graph?**

A The number of concert tickets sold each day

B The temperature outside throughout a day

C The height of a plant as it grows over several weeks

D The volume of water in a pool as it fills

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19 **If h(x) = 3(x - 2) and h(x) = 15, then the value of x is _____**

ANSWER _____

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20 **The graph shown is the graph of a function. The y-intercept of the graph is**

A -3

B 2

C 0

D -4

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21 For the function $f(x) = \frac{x - 6}{3}$, the value of f(15) is

A 9

B 5

C 7

D 3

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22 The function f is defined by the set of ordered pairs {(1, 2), (2, 4), (3, 8), (4, 16)}. The sum of the values in the range of f is ____

ANSWER _____

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23 **The graph of function f is shown. The zeros of f are**

A 1 and 3

B -1 and 3

C 1 and -3

D 2 only

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24 **For a function f, it is known that f(5) = 9. Which statement is true?**

A When the input is 9, the output is 5

B The domain of f is 5 and the range of f is 9

C The point (5, 9) lies on the graph of f

D The value 5 is multiplied by f to give 9

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25 **If $f(x) = 2x^2 - 1$, then the value of $f(3) - f(1)$ is ____**

ANSWER

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ANSWER KEY

1. A
2. D
3. C
4. D
5. A
6. 11
7. B
8. A
9. D
10. 6
11. A
12. B
13. 21
14. C
15. C
16. 3
17. B
18. A
19. 7
20. D
21. D
22. 30
23. A
24. C
25. 16

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