ALBERTA MATH 30-1 · 25 QUESTIONS

Radical 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 **The graph below shows a radical function. The domain and range of the function are**

- A Domain: x ≥ 4 Range: y ≥ 2
- B Domain: x ≥ 2 Range: y ≥ 4
- C Domain: x ≥ -4 Range: y ≥ 2
- D Domain: x ≥ 4 Range: y ≥ 0

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2 **The graph below shows a radical function. The starting point (endpoint) of the graph is**

- A (3, -5)
- B (-3, -5)
- C (-3, 5)
- D (3, 5)

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3 The solution to the equation $\sqrt{x + 7} = 4$ is

- A 3
- B 23
- C 9
- D 11

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4 The graph of $y = \sqrt{x - 5} + 1$ is the graph of $y = \sqrt{x}$ translated

- A 5 units to the right and 1 unit up
- B 5 units to the left and 1 unit up
- C 5 units to the right and 1 unit down
- D 5 units to the left and 1 unit down

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5 The solution to the equation $\sqrt{3x + 1} = 5$ is

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6 The graph below shows $y = f(x)$ as a dashed line and $y = \sqrt{f(x)}$ as a solid curve. The invariant points of this transformation occur at the x-values

A 3 and 4

B 0 and 1

C 3 only

D -3 and -4

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7 The solution to the equation $\sqrt{2x - 1} = x - 2$ is

- **A** x = 1 and x = 5
- **B** x = 5
- **C** x = 1
- **D** No solution

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8 The domain of the function $y = \sqrt{6 - 3x}$ is

- **A** $x \geq -2$
- **B** $x \geq 2$
- **C** $x \leq 2$
- **D** $x \leq -2$

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9 The solution to the equation $\sqrt{x + 6} = \sqrt{3x - 2}$ is

- **A** 2
- **B** -4
- **C** 6
- **D** 4

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10 The equation $\sqrt{5x - 4} = x$ has two solutions. The smaller of the two solutions is

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11 **The domain of the function $y = \sqrt{x^2 - x - 6}$ is**

- **A** $x \leq -2$ or $x \geq 3$
- **B** $-2 \leq x \leq 3$
- **C** $x \geq 3$
- **D** All real numbers

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12 **The graph below shows $y = f(x)$ as a dashed curve and $y = \sqrt{f(x)}$ as a solid curve. The number of invariant points of this transformation is**

- **A** 2
- **B** 6
- **C** 4
- **D** 3

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13 The solution to the equation $\sqrt{x + 4} + \sqrt{x - 1} = 5$ is

- A 3
- B 12
- C 5
- D 20

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14 The solution to the equation $\sqrt{x + 3} = x - 3$ is

- A x = 1 and x = 6
- B x = 6
- C x = 1
- D No solution

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15 **When solved algebraically, the equation that produces an extraneous root of x = 2 is**

- **A** $\sqrt{x - 2} = x - 4$
- **B** $\sqrt{2x + 3} = x$
- **C** $\sqrt{x + 7} = x + 1$
- **D** $\sqrt{x - 1} = x - 3$

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16 **The domain and range of the function $y = -\sqrt{x + 1} + 3$ are**

- **A** Domain: $x \geq -1$ Range: $y \geq 3$
- **B** Domain: $x \geq 1$ Range: $y \leq 3$
- **C** Domain: $x \geq -1$ Range: $y \leq 3$
- **D** Domain: $x \geq -1$ Range: $y \geq -3$

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17 **The graph of $y = 2\sqrt{x - 3} + 1$ passes through the point (12, b). The value of b is**

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18 **The range of the function $y = \sqrt{-x^2 + 2x + 3}$ is**

A $0 \le y \le 2$

B $y \ge 0$

C $0 \le y \le 4$

D $y \le 2$

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19 The solution to the equation $\sqrt{x + 7} - \sqrt{x} = 1$ is

- A 16
- B 3
- C 4
- D 9

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20 When a student solves the equation $\sqrt{x - 1} = x - 7$ algebraically, the potential solutions obtained are $x = 5$ and $x = 10$. The correct solution set is

- A $x = 5$ and $x = 10$
- B $x = 10$
- C $x = 5$
- D No solution

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21 If the point (7, 4) is on the graph of $y = f(x)$, then a corresponding point on the graph of $y = \sqrt{f(x)}$ is

A (7, 16)

B (49, 2)

C $(\sqrt{7}, 4)$

D (7, 2)

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22 The solution to the equation $\sqrt{x + 2} = x$ is

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23 The solution to the equation $\sqrt{4x + 1} = 5$ is

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24 **The graph of $y = f(x)$, where $f(x) = (x - 2)^2$, is transformed into the graph of $y = \sqrt{f(x)}$. The number of invariant points of this transformation is**

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25 **When the equation $\sqrt{x - 3} = x - 5$ is solved algebraically, one of the potential solutions is extraneous. The value of the extraneous root is**

ANSWER _____

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ANSWER KEY

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

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