ALBERTA MATH 20-1 · UNIT 6 · 25 QUESTIONS

Absolute Value and Reciprocal 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 value of |-7| + |3 - 8| is**

- **A** 2
- **B** -2
- **C** -12
- **D** 12

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2 **The solutions to the equation |x - 4| = 9 are**

- **A** x = -5 and x = 13
- **B** x = 5 and x = 13
- **C** x = -13 and x = 5
- **D** x = 13 only

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3 **The graph shown is an absolute value function with its vertex marked V. The vertex is**

- **A** (-3, 2)
- **B** (3, 2)
- **C** (3, -2)
- **D** (-3, -2)

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4 **The non-permissible value of x for the function $y = \frac{1}{x + 5}$ is**

A x = 5

B x = 0

C x = -5

D x = 1

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5 **The sum of the solutions to the equation |2x + 1| = 7 is ____.**

ANSWER _____

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6 **The solutions to the equation $3|x + 2| - 5 = 13$ are**

A $x = 4$ only

B $x = -4$ and $x = 8$

C $x = -8$ only

D $x = -8$ and $x = 4$

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7 **The range of the function $y = -2|x - 1| + 5$ is**

A $y \leq 5$

B $y \geq 5$

C $y \leq 1$

D $y \geq 1$

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8 For $f(x) = x - 2$, the invariant points of the graph of $y = \frac{1}{f(x)}$ occur when

- **A** $x = 1$ and $x = 3$
- **B** $x = 2$ only
- **C** $x = -1$ and $x = -3$
- **D** $x = 0$ and $x = 2$

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9 The product of the x-intercepts of the graph of $y = |x + 2| - 6$ is ____.

ANSWER _____

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10 **The graph shown is an absolute value function. Its y -intercept is**

- **A** 2
- **B** -3
- **C** -8
- **D** 5

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11 **The solutions to the equation $|2x - 3| = x + 1$ are**

- **A** $x = 4$ only
- **B** $x = \frac{2}{3}$ only
- **C** $x = \frac{2}{3}$ and $x = 4$
- **D** no solution

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12 **The solutions to the equation $|3x - 1| = x - 4$ are**

- **A** $x = -\frac{3}{2}$ and $x = \frac{5}{4}$
- **B** $x = \frac{5}{4}$ only
- **C** $x = -\frac{3}{2}$ only
- **D** no solution

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13 **The product of the solutions to the equation $|2x - 5| = |x + 4|$ is ____.**

ANSWER _____

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14 The vertical asymptotes of the graph of $y = \frac{1}{x^2 - 5x + 6}$ are

- **A** x = -2 and x = -3
- **B** x = -5 and x = 6
- **C** x = 2 only
- **D** x = 2 and x = 3

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15 The graphs of $y = x^2 - 4$ and $y = \frac{1}{x^2 - 4}$ share invariant points. The x-coordinates of these invariant points are

- **A** x = ± 2
- **B** $x = \pm\sqrt{3}$ and $x = \pm\sqrt{5}$
- **C** $x = \pm\sqrt{5}$ only
- **D** x = 0

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16 **The product of the solutions to the equation $|4x - 3| = 13$ is ____.**

ANSWER _____

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17 **An absolute value function has vertex (2, -3), opens upward, and passes through the point (3, 1). Its equation is**

A $y = \frac{1}{4}|x - 2| - 3$

B $y = 4|x - 2| - 3$

C $y = 4|x + 2| - 3$

D $y = 4|x - 2| + 3$

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18 **The graphs shown are an absolute value function and a horizontal line. They intersect at points where**

- **A** x = 2 and x = 4
- **B** x = -2 and x = 4
- **C** x = -4 and x = 2
- **D** x = -2 only

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19 **The product of the x-intercepts of the graph of y = |2x + 4| - 8 is ____.**

ANSWER _____

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20 The domain of the function $y = \frac{1}{x^2 - 1}$ is

- **A** All real numbers
- **B** All real numbers except x = 0
- **C** All real numbers except x = 1 and x = -1
- **D** All real numbers greater than 1

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21 The solutions to the equation $|5 - x| = 2x + 1$ are

- **A** $x = -6$ and $x = \frac{4}{3}$
- **B** no solution
- **C** $x = -6$ only
- **D** $x = \frac{4}{3}$ only

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22 **For the function $y = \frac{1}{x^2 - 5x + 4}$, the sum of the non-permissible values of x is ____.**

ANSWER _____

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23 **Which statement about the graph shown is true?**

A The graph has a vertical asymptote at x = -4

B The graph has a horizontal asymptote at y = 0

C The graph has an x -intercept at (4, 0)

D The graph passes through the point $(0, \frac{1}{4})$

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24 **The graph of y = |x| is translated 3 units to the left and 5 units down. The equation of the resulting graph is**

- **A** y = |x - 3| - 5
- **B** y = |x + 3| + 5
- **C** y = |x + 3| - 5
- **D** y = |x - 3| + 5

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25 **The sum of the solutions to the equation |x + 1| = |3x - 5| is ____.**

ANSWER _____

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ANSWER KEY

1. D
2. A
3. B
4. C
5. -1
6. D
7. A
8. A
9. -32
10. A
11. C
12. D
13. 3
14. D
15. B
16. -10
17. B
18. B
19. -12
20. C
21. D
22. 5
23. B
24. C
25. 4

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