ALBERTA MATH 30-2 · UNIT 4 · 25 QUESTIONS

Rational Expressions and Equations — 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 For the rational expression $\frac{7}{x - 3}$, the non-permissible value of x is

- **A** $x \neq -3$
- **B** $x \neq 3$
- **C** $x \neq 7$
- **D** $x \neq 0$

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2 When written in simplest form, $\frac{x^2 - 9}{x + 3}$ is equal to

- **A** $x - 3$
- **B** $x + 3$
- **C** $x - 9$
- **D** $\frac{x - 3}{x + 3}$

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3 The non-permissible values of $\frac{x + 2}{(x - 1)(x + 4)}$ are

- **A** $x \neq -1, x \neq 4$
- **B** $x \neq 1, x \neq 4$
- **C** $x \neq 1, x \neq -4$
- **D** $x \neq -1, x \neq -4$

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4 The product $\frac{x}{6} \cdot \frac{3}{x^2}$, where $x \neq 0$, simplified, is

A $\frac{1}{2x^2}$

B $\frac{3}{2x}$

C $\frac{x}{2}$

D $\frac{1}{2x}$

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5 When $\frac{x^2 - 16}{x^2 + x - 20}$ is written in simplest form, the numerator is $x + a$. The value of a is ____ Record your answer as an integer.

ANSWER _____

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6 The quotient $\frac{x^2 - 1}{x} \div \frac{x + 1}{x^2}$ is equal to

- **A** $x - 1$
- **B** $\frac{x}{x - 1}$
- **C** $x^2 - x$
- **D** $x^2 + x$

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7 The sum $\frac{2}{x + 1} + \frac{3}{x}$ is equal to

- **A** $\frac{5x + 3}{x(x + 1)}$
- **B** $\frac{5}{x(x + 1)}$
- **C** $\frac{5x + 3}{2x + 1}$
- **D** $\frac{6}{x(x + 1)}$

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8 The solution to the equation $\frac{x}{3} + \frac{x}{4} = 7$ is _____ Record your answer as an integer.

ANSWER _____

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9 The difference $\frac{5x}{x+3} - \frac{2x}{x+3}$ is equal to

A $\frac{3}{x+3}$

B $\frac{3x}{x+3}$

C $\frac{7x}{x+3}$

D $\frac{3x}{2x+6}$

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10 When written in simplest form, $\frac{x^2 + 5x + 6}{x^2 - 4}$ is equal to

A $\frac{x + 3}{x + 2}$

B $\frac{x + 2}{x - 2}$

C $\frac{x - 3}{x - 2}$

D $\frac{x + 3}{x - 2}$

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11 The solution to the equation $\frac{4}{x - 1} = \frac{2}{x}$ is

A 2

B 1

C -1

D -2

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12 The sum $\frac{x}{x^2 - 4} + \frac{1}{x - 2}$ is equal to

A $\frac{2x + 2}{x^2 - 4}$

B $\frac{2}{x - 2}$

C $\frac{x + 1}{x^2 - 4}$

D $\frac{2x + 2}{x - 2}$

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13 The product $\frac{x^2 + 6x + 9}{x^2 - 9} \cdot \frac{x - 3}{x + 3}$ is equal to

A $x + 3$

B $\frac{x + 3}{x - 3}$

C 1

D $x - 3$

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14 **One hose can fill a tank in 6 hours, and a second hose can fill the same tank in 4 hours. Working together, the time taken to fill the tank, to the nearest tenth of an hour, is ____**

ANSWER _____

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15 **The solution to the equation $\frac{2x - 3}{x + 1} = 3$ is**

A 0

B -6

C 6

D $-\frac{3}{2}$

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16 The solution to the equation $\frac{x^2}{x - 3} = \frac{9}{x - 3}$ is

A x = 3

B x = -3 or x = 3

C no solution

D x = -3

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17 The non-permissible values of $\frac{2x - 1}{x^2 - x - 12}$ are p and q. The value of p + q is ____ Record your answer as an integer.

ANSWER _____

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18 A machine fills $\frac{1}{a}$ of a tank in one hour, and a second machine fills $\frac{1}{b}$ of the tank in one hour. An expression for the fraction of the tank filled in one hour when both machines run together is

A $\frac{a + b}{ab}$

B $\frac{1}{a + b}$

C $\frac{ab}{a + b}$

D $\frac{a - b}{ab}$

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19 The larger solution to the equation $\frac{1}{x - 1} + \frac{1}{x + 1} = \frac{3}{4}$ is _____ Record your answer as an integer.

ANSWER _____

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20 The quotient $\frac{x^2 - 5x + 6}{x^2 - 1} \div \frac{x - 3}{x + 1}$ is equal to

A $\frac{x - 3}{x - 1}$

B $\frac{x - 2}{x + 1}$

C $\frac{x - 2}{x - 1}$

D $\frac{x - 1}{x - 2}$

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21 The difference $\frac{3}{x - 1} - \frac{x}{x^2 - 1}$ is equal to

A $\frac{2x - 3}{x^2 - 1}$

B $\frac{2x + 3}{x^2 - 1}$

C $\frac{3 - x}{x - 1}$

D $\frac{2x + 3}{x - 1}$

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22 A driver travels 40 km at an average speed of 80 km/h, and returns along the same route at an average speed of 60 km/h. The average speed for the entire trip, to the nearest tenth of a kilometre per hour, is _____

ANSWER _____

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23 The non-permissible values of $\frac{x + 2}{x - 3} \div \frac{x + 2}{x + 1}$ are

A {-1, 3}

B {-2, 3}

C {-2, -1, 1, 3}

D {-2, -1, 3}

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24 The sum of the solutions to the equation $\frac{2}{x} + \frac{3}{x + 2} = 1$ is _____ Record your answer as an integer.

ANSWER _____

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25 The difference $\frac{x+3}{x^2-4} - \frac{x-1}{x-2}$ is equal to

A $\frac{5-x^2}{x^2-4}$

B $\frac{x^2+5}{x^2-4}$

C $\frac{5-x^2}{x-2}$

D $\frac{-x^2+2x+5}{x^2-4}$

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ANSWER KEY

1. B
2. A
3. C
4. D
5. 4
6. C
7. A
8. 12
9. B
10. D
11. C
12. A
13. C
14. 2.4
15. B
16. D
17. 1
18. A
19. 3
20. C
21. B
22. 68.6
23. D
24. 3
25. A

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