NUNAVUT MATHEMATICS 20-1 · UNIT 5 · 25 QUESTIONS

Rational Expressions — 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 non-permissible values of $\frac{2x + 1}{x^2 - 7x + 12}$ are

- **A** $x \neq -3, x \neq -4$
- **B** $x \neq 3, x \neq 4$
- **C** $x \neq 3, x \neq -4$
- **D** $x \neq -3, x \neq 4$

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2 When simplified, $\frac{x^2 - 4}{x^2 + 5x + 6}$ is equivalent to

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

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

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

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

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3 When simplified, $\frac{4x - 8}{x^2 - 4}$ is equivalent to

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

B $\frac{4}{x - 2}$

C $\frac{4}{x + 2}$

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

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4 **The sum of the non-permissible values of $\frac{x + 3}{x^2 - 2x - 8}$ is ____**

ANSWER

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5 **When simplified, $\frac{3x}{x - 1} \cdot \frac{x^2 - 1}{6x^2}$ is equivalent to**

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

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

C $\frac{x + 1}{6x}$

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

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6 **When simplified, $\frac{x^2 - 9}{x} \div \frac{x + 3}{x^2}$ is equivalent to**

- **A** $x^2 + 3x$
- **B** $x^2 - 3x$
- **C** $x - 3$
- **D** $3x - x^2$

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7 **When simplified, $\frac{x^2 - 3x}{x^2 - 9}$ is equivalent to**

- **A** $\frac{x}{x + 3}$
- **B** $\frac{x - 3}{x + 3}$
- **C** $\frac{x}{x - 3}$
- **D** $\frac{x^2 - 3x}{x + 3}$

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8 When $\frac{x^2 - 25}{x^2 + 2x - 15}$ is simplified and then evaluated at x = 2, the value is _____

ANSWER _____

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9 When simplified, $\frac{2}{x} + \frac{3}{x + 1}$ is equivalent to

A $\frac{5}{x(x + 1)}$

B $\frac{5x + 2}{2x + 1}$

C $\frac{5x + 2}{x(x + 1)}$

D $\frac{2x + 5}{x(x + 1)}$

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10 When simplified, $\frac{4}{x-2} - \frac{1}{x}$ is equivalent to

A $\frac{3x - 2}{x(x - 2)}$

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

C $\frac{5x + 2}{x(x - 2)}$

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

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11 The solution to the equation $\frac{3}{x} + \frac{1}{2} = \frac{5}{2x}$ is x = ____

ANSWER _____

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12 The solution to the equation $\frac{x}{x-2} + \frac{2}{x+2} = \frac{8}{x^2-4}$ is

- **A** x = -6
- **B** x = -6 or x = 2
- **C** x = 2
- **D** x = 6

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13 When $\frac{x^2-16}{x^2-x-12}$ is written in lowest terms, it can be expressed as $\frac{x+4}{x+a}$. The value of a is ____

ANSWER _____

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14 When simplified, $\frac{x^2 - 4x - 5}{x^2 + 6x + 8} \cdot \frac{x + 4}{x - 5}$ is equivalent to

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

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

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

D $\frac{x + 5}{x + 2}$

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15 When simplified, $\frac{1}{x^2 + 3x + 2} + \frac{1}{x^2 + 4x + 3}$ is equivalent to

A $\frac{2x + 5}{(x + 2)(x + 3)}$

B $\frac{x + 5}{(x + 1)(x + 2)(x + 3)}$

C $\frac{2x + 5}{(x + 1)(x + 2)(x + 3)}$

D $\frac{2}{(x + 1)(x + 2)(x + 3)}$

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16 The solution to the equation $\frac{4}{x+1} = \frac{2}{x-3}$ is x = ____

ANSWER _____

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17 Maria can paint a room in 6 hours, and her brother Luis can paint the same room in 9 hours. Working together, the time, in hours, that they take to paint the room is ____

ANSWER _____

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18 When simplified, $\frac{9 - x^2}{x^2 - 6x + 9}$ is equivalent to

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

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

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

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

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19 **Consider the equation $\frac{1}{x-2} + \frac{1}{x+2} = \frac{4}{x^2-4}$. Which statement is true?**

A The only solution is x = 2

B The equation has no solution

C The only solution is x = -2

D The solutions are x = 2 and x = -2

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20 **One printer can complete a printing job alone in x minutes. A second printer takes 5 minutes longer than the first printer to complete the same job. Working together, the two printers complete the job in 6 minutes. The time that the faster printer takes to complete the job alone, in minutes, is**

A 5

B 6

C 10

D 15

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21 The positive solution to the equation $\frac{1}{x} + \frac{1}{x+3} = \frac{5}{18}$ is ____

ANSWER

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22 When simplified, $\frac{6x^2}{x^2 - 1} \div \frac{3x}{x + 1}$ is equivalent to

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

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

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

D $\frac{6x}{x - 1}$

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23 One of the non-permissible values of $\frac{x - 5}{2x^2 + 9x + 4}$ is

A $\frac{1}{2}$

B 4

C 5

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

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24 When simplified, $\frac{3}{x^2 - 4} - \frac{1}{x + 2}$ is equivalent to

A $\frac{x + 5}{(x - 2)(x + 2)}$

B $\frac{5 - x}{(x - 2)(x + 2)}$

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

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

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25 When simplified, $\frac{2x^2 - 8}{x^2 + 4x + 4} \cdot \frac{x + 2}{x - 2}$ is equivalent to

A 2

B 2x

C $\frac{1}{2}$

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

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ANSWER KEY

1.	B	**10.**	D	**19.**	B
2.	A	**11.**	-1	**20.**	C
3.	C	**12.**	A	**21.**	6
4.	2	**13.**	3	**22.**	A
5.	D	**14.**	B	**23.**	D
6.	B	**15.**	C	**24.**	B
7.	A	**16.**	7	**25.**	A
8.	3	**17.**	3.6		
9.	C	**18.**	D		

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