NEW MEXICO ALGEBRA 2 · UNIT 2 · 25 QUESTIONS

Polynomials and Rational 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 degree of $(x^2 + 1)(x - 3)$ is**



A 2

B 3

C 5

D 6

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2 The leading coefficient of $-2x^4 + 5x^2 - x + 7$ is

- A -2
- B 4
- C 7
- D 5

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3 As $x \to -\infty$, the value of $-x^3 + 2x$ approaches

- A positive infinity
- B 2
- C negative infinity
- D 0

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4 **The sum of the zeros of $x^2 - 9$ is**

ANSWER _____

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5 **A factored form of $x^2 + 5x + 6$ is**

A $(x - 2)(x + 3)$

B $(x + 1)(x + 6)$

C $(x - 2)(x - 3)$

D $(x + 2)(x + 3)$

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6 **If $f(x) = x^3 - 2x^2 + 3x - 5$, then $f(2)$ is**

ANSWER _____

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7 If $f(x) = x^3 - 3x^2 + 2$, then $f(-1)$ is

- A 6
- B -2
- C 4
- D 0

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8 For $(x - 2)^2(x + 1)$, the multiplicity of the zero 2 is

- A 2
- B 3
- C 0
- D 1

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9 The vertical asymptote of $y = \frac{x + 1}{x - 3}$ is



A $x = -3$

B $y = 1$

C $x = -1$

D $x = 3$

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10 The horizontal asymptote of $y = \frac{2x^2 + x}{x^2 - 4}$ is



A none

B y = 0

C y = 1

D y = 2

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11 The graph of $y = \frac{x^2 - 4}{x - 2}$ has a hole at

A x = -2

B x = 2

C x = 4

D y = 2

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12 **In simplest form, $\frac{x^2 - 9}{x - 3}$, for $x \neq 3$, is**



A x + 9

B x + 3

C x - 9

D x - 3

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13 The sum $\frac{1}{x} + \frac{1}{x+1}$ is



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

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

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

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

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14 The solution of $\frac{x}{x - 1} = 2$ is

- **A** x = -1
- **B** x = 1
- **C** x = -2
- **D** x = 2

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15 The quotient of $(x^2 + 3x + 2) \div (x + 1)$ is

- **A** x + 1
- **B** x + 2
- **C** x + 3
- **D** x - 2

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16 **For $y = x^2 - 4x + 3$, the smaller zero of the function is**

A 1

B 2

C -1

D 3

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17 **The zeros of $x^2 + 4$ are**

A 4, -4

B none

C 2, -2

D 2i, -2i

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18 As $x \to \infty$ and as $x \to -\infty$, the graph of $y = 3x^4 - x^2$



A rises on both ends

B rises on the left and falls on the right

C falls on both ends

D falls on the left and rises on the right

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19 **A factored form of $x^3 - 4x$ is**

- **A** $x(x - 2)(x + 2)$
- **B** $x(x - 4)$
- **C** $(x - 2)(x + 2)$
- **D** $x^2(x - 4)$

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20 **The domain of $y = \frac{x + 2}{x^2 - 16}$ excludes**

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

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21 The horizontal asymptote of $y = \frac{3x + 1}{x^2 + 2}$ is

- A y = 1
- B none
- C y = 3
- D y = 0

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22 The larger zero of $x^2 - 3x - 10 = 0$ is

- A 10
- B -2
- C 5
- D 2

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23 The sum of the zeros of $x^3 - 6x^2 + 11x - 6$ is

ANSWER

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24 The solution of $\frac{x + 3}{x} = 2$ is

A. $x = -3$

B. $x = 3$

C. $x = 6$

D. $x = 1$

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25 **A polynomial with leading coefficient 1 and zeros 0, -1, and 4 is**

- **A** $x^3 + 3x^2 - 4x$
- **B** $x^3 - 3x^2 + 4x$
- **C** $x^3 + 5x^2 + 4x$
- **D** $x^3 - 3x^2 - 4x$

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ANSWER KEY

1.	B	**10.**	D	**19.**	A
2.	A	**11.**	B	**20.**	B
3.	A	**12.**	B	**21.**	D
4.	0	**13.**	D	**22.**	C
5.	D	**14.**	D	**23.**	6
6.	1	**15.**	B	**24.**	B
7.	B	**16.**	A	**25.**	D
8.	A	**17.**	D		
9.	D	**18.**	A		

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