College Algebra Practice Quiz PDF PDF

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What is the domain of the function f(x) = \sqrt{x-3}?

- ◯ x >= 3
- ◯ x > 3
- ◯ x <= 3
- ◯ All real numbers

What is the solution to the inequality 2x - 5 > 3?

- ◯ x > 4
- ◯ x < 4
- ◯ x > 1
- ◯ x < 1

What is the inverse of the function f(x) = 3x + 2?

- ◯ f^{-1}(x) = (x - 2)/3
- ◯ f^{-1}(x) = 3x - 2
- ◯ f^{-1}(x) = x/3 + 2
- ◯ f^{-1}(x) = 3(x - 2)

What is the determinant of the matrix \begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}?

- ◯ -2
- ◯ 2
- ◯ -10
- ◯ 10

What is the sum of the first 5 terms of the arithmetic sequence where the first term is 2 and the common difference is 3?

- ◯ 25

- ◯ 30
- ◯ 35
- ◯ 40

Which of the following are properties of logarithms?

- ☐ \log_b(xy) = \log_b(x) + \log_b(y)
- ☐ \log_b(x/y) = \log_b(x) - \log_b(y)
- ☐ \log_b(x^n) = n \cdot \log_b(x)
- ☐ \log_b(x+y) = \log_b(x) + \log_b(y)

Which of the following are methods to solve a system of linear equations?

- ☐ Graphical method
- ☐ Substitution method
- ☐ Elimination method
- ☐ Integration method

Which of the following statements about complex numbers are true?

- ☐ The sum of a complex number and its conjugate is always real.
- ☐ The product of a complex number and its conjugate is always real.
- ☐ Complex numbers can be represented in polar form.
- ☐ The division of two complex numbers always results in a real number.

Which of the following are characteristics of exponential functions?

- ☐ They have a constant rate of change.
- ☐ They are defined for all real numbers.
- ☐ They have a horizontal asymptote.
- ☐ They are symmetric about the y-axis.

Which of the following are true about polynomial functions?

- ☐ They are continuous for all real numbers.
- ☐ They have a finite number of turning points.
- ☐ They can have an infinite number of roots.
- ☐ Their degree determines the maximum number of roots.

Which of the following are true about rational expressions?

- [ ] They can be simplified by cancelizing common factors.
- [ ] They are undefined where the denominator is zero.
- [ ] They always have a horizontal asymptote.
- [ ] They can be added by finding a common denominator.

Explain how you would solve the quadratic equation x^2 - 5x + 6 = 0 using the factoring method. Include all steps in your explanation.

Describe the process of converting a complex number from rectangular form to polar form. Provide an example with your explanation.

Discuss the significance of the discriminant in a quadratic equation. How does it determine the nature of the roots?

Analyze the function f(x) = 2x^3 - 3x^2 + x - 5. Determine its end behavior and discuss how the leading term affects the graph.

Explain the difference between an arithmetic sequence and a geometric sequence. Provide examples of each and discuss how to find the sum of the first n terms.

Provide a detailed explanation of how to solve the system of equations using the elimination method: 2x + 3y = 6; 4x - y = 5.

Discuss the role of asymptotes in the graph of a rational function. How do they affect the shape and behavior of the graph?

Explain how to find the vertex of a quadratic function in the form f(x) = ax^2 + bx + c. Include a step-by-step process and an example.

Analyze the behavior of the function f(x) = \log(x - 1). Discuss its domain, range, and any asymptotes.