Math QA Dataset

Q: What is the derivative of x^2 + 3x + 2?

Solution: The derivative is 2x + 3

Topic: calculus | Difficulty: easy

Steps:

  - Step 1: Apply power rule to x^2: d/dx(x^2) = 2x

  - Step 2: Apply power rule to 3x: d/dx(3x) = 3

  - Step 3: Derivative of constant 2 is 0

  - Step 4: Combine: 2x + 3 + 0 = 2x + 3

Q: Solve the quadratic equation x^2 - 5x + 6 = 0

Solution: x = 2 or x = 3

Topic: algebra | Difficulty: medium

Steps:

  - Step 1: Factor the quadratic: (x - 2)(x - 3) = 0

  - Step 2: Set each factor to zero: x - 2 = 0 or x - 3 = 0

  - Step 3: Solve: x = 2 or x = 3

Q: Find the area of a circle with radius 5

Solution: The area is 25pi or approximately 78.54 square units

Topic: geometry | Difficulty: easy

Steps:

  - Step 1: Use the formula A = pir²

  - Step 2: Substitute r = 5: A = pi(5)²

  - Step 3: Calculate: A = pi × 25 = 25pi

  - Step 4: Approximate: 25pi approximately 78.54 square units