SELECTABLE MATHEMATICS TEST

Total Points: 100 | Questions: 5 | Date: November 17, 2025

This test demonstrates selectable mathematical expressions that can be copied and edited.

Question 1

Solve the quadratic equation $x^2 - 5x + 6 = 0$ using the quadratic formula $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$.

Question 2

Calculate the integral:

$$\int_0^{\pi} \sin(x)\, dx$$

Question 3

Find the limit $\lim_{x \to 0} \frac{\sin(x)}{x}$ and explain why it equals 1.

Question 4

Given the function $f(x) = x^3 + 2x^2 - 5x + 3$, find $f'(x)$.

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

Question 5

Physics problem: A ball is thrown with initial velocity $v_0 = 20$ m/s at angle $\theta = 45°$. The position equations are:

$$x(t) = v_0 \cos(\theta) \cdot t$$

$$y(t) = v_0 \sin(\theta) \cdot t - \frac{1}{2}gt^2$$

Where $g = 9.8$ m/s^2. Find the maximum height reached.
