

**Problem 1**

Let  $f(x) = 2 \sin(x^3) + 1$ . Find  $f'(x)$ .

**Problem 2**

Find  $\frac{d}{dx} \left( (x^2 + 2x)^{50} \right)$ .

**Problem 3**

Let  $f(x) = \tan^2(x)$ . Find  $f'(x)$ .

**Problem 4**

Find  $\frac{d}{dx} \left( \sqrt[3]{\sin(x) + \cos(x)} \right)$ .

**Problem 5**

Find  $\frac{d}{dx} \left( \frac{\sin(x^2)}{\sin(2x + 1)} \right)$ .

**Problem 6**

Let  $f(x) = 10(\cos(x^2) + x^2) \sin(x)$ . Find  $f'(x)$ .

**Problem 7**

Let  $f(x) = \frac{x \sin(x^2 + 1)}{x^2 + x + 1}$ . Find  $f'(x)$ .