Quiz 2: Fundamental Theorem and the Indefinite Integral

January 23, 2013

Name: Key Section: _____

Instructions: Be sure to write neatly and show all steps. Circle or box your final answer. Answer both questions (second one is on the back).

1. Evaluate $\int_{\pi/2}^{\pi} 3\cos x\, dx$.

5 pt

Use FTC part II

$$\int_{\pi/2}^{\pi} 3\cos x\, dx = \underbrace{3\sin x}_{\text{antiderivative}}\Big|_{\pi/2}^{\pi} = 3\sin\pi - 3\sin\frac{\pi}{2}$$

plugging in bounds +3

antiderivative +2

$$= 3(0) - 3(1) = -3$$

5 pt

2. Evaluate $\int (x+4)(2x+1)\,dx$.

$$\int (x+4)(2x+1)\,dx = \int (2x^2+8x+x+4)\,dx$$

$$= \int (2x^2+9x+4)\,dx$$

$$= \frac{2x^3}{3} + \frac{9x^2}{2} + 4x + C$$