

MATH 1100-A 2008 Quiz 13

Jan. 20, 2009

Sections 5.4, 5.5.

Evaluate the indefinite integrals:

1. (2.5 pts)

$$\int \frac{x^3 + 2x}{\sqrt{x}} dx.$$

Solution:

$$\begin{aligned} & \int \frac{x^3 + 2x}{\sqrt{x}} dx \\ &= \int x^{\frac{5}{2}} + 2x^{\frac{1}{2}} dx \\ &= \frac{2}{7}x^{\frac{7}{2}} + 2 \cdot \frac{2}{3}x^{\frac{3}{2}} + C \end{aligned}$$

□

2. (2.5 pts) Let $u = \sin x$, $du = \cos x dx$.

$$\begin{aligned} & \int \frac{\cos x}{\sin^4 x} dx \\ &= \int \frac{du}{u^4} = -\frac{1}{3}u^{-3} + C \\ &= -\frac{1}{3}(\sin x)^{-3} + C. \end{aligned}$$

□