

Quiz 1Name: Solution Key

Answer all questions in a clear and concise manner. Unsupported answers will receive no credit.

1. Evaluate the indefinite integral $\int 4x^3(x^4 + 7)^{10} dx$.

$$\text{Let } u = x^4 + 7, \text{ then } du = 4x^3 dx.$$

$$\begin{aligned} \text{So } \int 4x^3(x^4 + 7)^{10} dx &= \int u^{10} du \\ &= \frac{1}{11} u^{11} + C \\ &= \frac{1}{11} (x^4 + 7)^{11} + C \end{aligned}$$

2. Evaluate the indefinite integral $\int \frac{\ln x}{x} dx$.

$$\text{Let } u = \ln x, \text{ then } du = \frac{1}{x} dx.$$

$$\begin{aligned} \int \frac{\ln x}{x} dx &= \int u du = \frac{1}{2} u^2 + C \\ &= \frac{1}{2} (\ln x)^2 + C \end{aligned}$$