

Evaluate $\int x^3 (\ln x)^2 dx$. Simplify your final answer.

SCORE: ____ / 5 PTS

$$\begin{array}{r}
 \frac{u}{(\ln x)^2} \quad \frac{dv}{x^3} \\
 \frac{2 \ln x}{x} \quad \frac{1}{4} x^4 \\
 \frac{2}{x} \quad \frac{1}{16} x^4 \\
 2 \quad \frac{1}{16} x^3 \\
 0 \quad \frac{1}{64} x^4
 \end{array}$$

$$\underbrace{\frac{1}{4} x^4 (\ln x)^2}_{\textcircled{1\frac{1}{2}}} - \underbrace{\frac{1}{8} x^4 \ln x}_{\textcircled{1\frac{1}{2}}} + \underbrace{\frac{1}{32} x^4}_{\textcircled{1\frac{1}{2}}} + \underbrace{C}_{\textcircled{\frac{1}{2}}}$$

Evaluate $\int e^{-2x} \sin 4x dx$. Simplify your final answer.

SCORE: ____ / 5 PTS

$$\begin{array}{r}
 \frac{u}{e^{-2x}} \quad \frac{dv}{\sin 4x} \\
 -2e^{-2x} \quad -\frac{1}{4} \cos 4x \\
 4e^{-2x} \quad -\frac{1}{16} \sin 4x
 \end{array}$$

$$\int e^{-2x} \sin 4x dx = \underbrace{-\frac{1}{4} e^{-2x} \cos 4x}_{\textcircled{1}} - \underbrace{\frac{1}{8} e^{-2x} \sin 4x}_{\textcircled{1}} - \underbrace{\frac{1}{4} \int e^{-2x} \sin 4x dx}_{\textcircled{1}}$$

$$\underbrace{\frac{5}{4} \int e^{-2x} \sin 4x dx}_{\textcircled{1\frac{1}{2}}} = -\frac{1}{4} e^{-2x} \cos 4x - \frac{1}{8} e^{-2x} \sin 4x$$

$$\int e^{-2x} \sin 4x dx = \underbrace{-\frac{1}{5} e^{-2x} \cos 4x - \frac{1}{10} e^{-2x} \sin 4x}_{\textcircled{1}} + \underbrace{C}_{\textcircled{\frac{1}{2}}}$$