

Homework 6 - Math 142

Name: _____

1. Find the area under the curve $y = xe^{-x}$ from $x = 0$ to $x = 2$.

2. Find $\int_0^{\pi} x \cos(4x) dx$.

3. Use tabular integration to find the antiderivative of $x^3 e^{2x}$.

4. Find $\int \theta \sec^2 \theta d\theta$.

5. $\int e^{\sqrt{x}} dx$. Hint: Start with the u -substitution $u = \sqrt{x}$ (which also means that $x = u^2$).

6. Find $\int \arcsin(x) dx$.

7. Find $\int \sin^3 x \cos^2 x dx$.

8. Compute $\int_0^{\pi/3} \tan^3 x \sec^2 x dx$.

9. Evaluate $\int \frac{\cos \theta}{\sqrt{\sin \theta}} d\theta$.

10. Find $\int \cos^2 \theta \sin^2 \theta d\theta$. Hint: Use the half-angle formulas.
