

Evaluate the following integrals, and *check your answers!!*

1. $\int x \sin(\pi x^2) dx$ ($u = \pi x^2$)

2. $\int \frac{1}{\sqrt{1-x}} dx$ ($u = 1-x$)

3. $\int_1^3 \frac{x}{1+x^2} dx$ ($u = 1+x^2$)

4. $\int \frac{e^{\sqrt{x+1}}}{\sqrt{x+1}} dx$ ($u = \sqrt{x+1}$)

5. $\int_2^5 \frac{1}{x \ln(x)} dx$ ($u = \ln(x)$)

$$6. \int \sin(x)e^{\cos(x)} dx$$

$$7. \int x^2 \sec(x^3) \tan(x^3) dx$$

$$8. \int e^x \cos(e^x) dx$$

$$9. \int \tan(x) dx \quad \text{Hint: } \tan(x) = \frac{\sin(x)}{\cos(x)}$$

$$10. \int \frac{\sec(x)^2}{\tan(x)} dx$$

$$11. \int x\sqrt{x-1} dx \quad \text{Hint: Let } u = x - 1$$