

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

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

2. $\int \frac{3x^2}{\sqrt{1-x^6}} dx \quad (u = x^3)$

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

4. $\int \frac{x}{1+x^4} dx \quad (u = x^2)$

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

Evaluate the following integrals, and check your answer by differentiation.

$$1. \int 2x \cos(x^2) dx$$

$$2. \int x^2 \sin(x^3) dx$$

$$3. \int 7e^{4x} dx$$

$$4. \int \sin(x) (\cos(x))^2 dx$$

$$5. \int \frac{\ln(x)}{x} dx$$

$$6. \int \sec(x) \tan(x) dx$$

$$7. \int \sec(x) \tan(x) e^{\sec(x)} dx$$

$$8. \int \frac{\sin(\sqrt{x})}{\sqrt{x}} dx$$

$$9. \int \tan(x) (\sec(x))^2 dx$$

$$10. \int \frac{x^5 + x - 2}{x^6 + 3x^2 - 12x + 3} dx$$

$$11. \int \frac{e^x}{1 + e^{2x}} dx$$

$$12. \int \frac{x^5}{\sqrt{1 + x^3}} dx$$

Evaluate the following integrals, and check your answer by differentiation.

1. $\int \frac{\cos(\pi/x)}{x^2} dx$

2. $\int x\sqrt{x-1} dx$

3. $\int e^x \sqrt{e^x - 1} dx$

4. $\int (x^3 + \pi)^2 dx$

5. $\int \frac{x}{\sqrt{1+2x}} dx$