

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

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

2. $\int e^{3-2x} dx$

3. $\int \frac{5}{\sqrt{5-4x-x^2}} dx$

Hint: Complete the square

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

5. $\int \tan(x) dx$

Hint: $\tan(x) = \frac{\sin(x)}{\cos(x)}$

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

Hint: Let $u = 1 + \sqrt{x}$