

1. Compute the indefinite integral

$$F(x) = \int \frac{1}{\cos(x)} dx$$

by noticing that

$$\frac{1}{\cos(x)} = \frac{\cos(x)}{1 - \sin^2(x)}$$

Hint: At some point you might need to use the algebraic equality

$$\frac{1}{1 - u^2} = \frac{1/2}{1 + u} + \frac{1/2}{1 - u}$$

2. Verify that what you found is correct by taking the derivative of $F(x)$.