

3. (10 points).

Assume that $f(x)$ is a differentiable function. Derive an equation for $\frac{d}{dx} \left(\frac{1}{f(x)} \right)$ from first principles.

4. (10 points). Calculate the derivatives of the following two functions.

a)

$$\cos \left(\frac{x^2}{5-x} \right).$$

b)

$$\tan^{10}(\sqrt{x}).$$