

Exercícios do Texto 10 e 11

MAT 111 - Cálculo I - BE

13 de maio de 2020

1. Calcule $f'(x)$ onde:

(a) $f(x) = x^3 + 2x + \frac{4}{x} + \frac{3}{x^2} + \sqrt{x} + 1;$

(b) $f(x) = \frac{3}{x^2+2};$

(c) $f(x) = x^3 \operatorname{tg} x + 4 \ln x;$

(d) $f(x) = \frac{2 \operatorname{sen} x}{x^5+x};$

(e) $f(x) = x e^x \cos x;$

(f) $f(x) = \frac{5 \ln x}{x} \operatorname{tg} x;$

(g) $f(x) = \frac{x+1}{x \operatorname{sen} x} + 7 e^x \sec x.$

2. Calcule $f'(x)$ onde:

(a) $f(x) = (3x^2 + 1)^{100};$

(b) $f(x) = e^{\cos x};$

(c) $f(x) = \operatorname{sen}(1 - x);$

(d) $f(x) = \ln(\sqrt{x});$

(e) $f(x) = \operatorname{sen}(\cos^3 x);$

(f) $f(x) = \cos(\ln 2x);$

(g) $f(x) = e^{\operatorname{sen}(\sqrt{x^4+1})}.$

3. Calcule $f'(x)$ onde:

(a) $f(x) = x e^{-x};$

(b) $f(x) = \frac{e^{3x}}{\operatorname{sen}(-x)};$

(c) $f(x) = \operatorname{sen}(e^x \sqrt{x^2 + 1});$

(d) $f(x) = (\operatorname{tg}(x^2))(\sqrt{x^4 + 1});$

(e) $f(x) = \sec(\frac{\ln 5x}{x^4+3});$

(f) $f(x) = 3^x;$

(g) $f(x) = 5^x + x^5;$

(h) $f(x) = x^x;$

(i) $f(x) = x^{\operatorname{sen} x}.$