Lista de Exercícios: Derivadas e Integrais.

Calcule a derivada das funções:

1. $f(x) = \frac{x^3}{1+x^2}$ resp. $f'(x) = \frac{3x^2(1+x^2)-x^3 2x}{(1+x^2)^2}$

2. $f(x) = \frac{lnx}{1+x}$ resp. $f'(x) = \frac{\left(\frac{1}{x}(1+x)-lnx.1\right)}{(1+x)^2}$

3. $f(x) = secx + tgx + senx\ cosx$

   Resp. $f'(x) = secx\ tgx + \sec^2 x + cosx\ cosx - senx\ senx$

4. $f(x) = e^{x^2+x}$ $\Rightarrow$ $f'(x) = e^{x^2+x}(2x+1)$

5. $f(x) = sen(3x^2-1)$ $\Rightarrow$ $f'(x) = \cos(3x^2-1)(6x)$

6. $f(x) = \ln(3x^3-2x)$ $\Rightarrow$ $f'(x) = \frac{9x^2-2}{3x^3-2x}$

7. $f(x) = \mathrm{tg}(4x+3)$ $\Rightarrow$ $f'(x) = 4\sec^2(4x+3)$

8. $f(x) = (x^3-3x^2)^5$ $\Rightarrow$ $f'(x) = 5(x^3-3x^2)^4(3x^2-6x)$