Atividade Derivada - Douglas Horvath

1. $f(x) = (6x+1)(2x+4)$, $x=1$

$f'(x) = 6\cdot(2x+4) + (6x+1)\cdot 2$

$f'(x) = 12x + 24 + 12x + 2$

$f'(x) = 24x + 26$

$f'(1) = 24\cdot(1) + 26 = 50$ //

2. $x^2(6x-5)^3$, $x=1$

$f'(x) = 2x(6x-5)^3 + x^2(3\cdot(6x-5)^2 \cdot 6)$

$f'(x)$ $2 + 18$ $f'(1) = 20$ //

3. $f(x) = \dfrac{5x-7}{x+1}$, $x=1$

$f'(x) = \dfrac{5(x+1) - 1(5x-7)}{(x+1)^2}$

$f'(x) = \dfrac{5x+5-5x-7}{(x+1)^2}$

$f'(x) = \dfrac{12}{(x+1)^2}$ $f'(1) = \dfrac{12}{4} = 3$ //

4. $f(x) = x^8 - \frac{4}{3}x^6 + 3x^3 + 7x - 2\sqrt{3}$, $x=1$

$f'(x) = 8x^7 - 8x^5 + 9x^2 + 7$

$f'(1) = 8 - 8 + 9 + 7 = 16$ //

5. $f(x) = \dfrac{-x^3 - 2x^2 + 5x + 8}{4x^5 - 9x + 5}$, $x=0$

$f'(x)$ $\dfrac{(-3x^2 - 4x + 5)\cdot(4x^5 - 9x + 5) - (-x^3 - 2x^2 + 5x + 8)\cdot(20x^4 - 9)}{(4x^5 - 9x + 5)^2}$

$f'(0) = \dfrac{(5\cdot 5) - (8\cdot(-9))}{25} = \dfrac{25 + 72}{25} = \dfrac{97}{25}$

/ /

6. $f(x) = 3x^{10} \cdot (-x+7)^4$, $x = 2$

$f'(x) = 30x^9(-x+7)^4 + (4(-x+7)^3 \cdot (-1)) \cdot 3x^{10}$

$f'(2) = 30 \cdot 2^9 \cdot (-2+7)^4 + (-4(-2+7)^3) \cdot 3 \cdot 2^{10}$

$f'(2) = 30 \cdot 512 (5)^4 + (-4(5)^3) \cdot 3 \cdot 1024$

$f'(2) = 15360 \cdot 625 + (-4 \cdot 125) \cdot 3072$

$f'(2) = 9600000 + (-1536.000)$

$f'(2) = 8.064.000$ //