**MATEMATICA I – 1º Semestre 2017/2018**

**AULA TUTORIAL 5**

Derive as seguintes funções nos seus domínios:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **a)** $\left(1+3x-5x^{2}\right)^{30}$ |  | **b)** $\left(\frac{ax+b}{c}\right)^{3}$, com $a,b,c$ constantes |  | **c)** $\sqrt[3]{a+bx^{3 }}$, com $a,b$ constantes |
| **d)** $2x+5cos^{3}x$ |  | **e)** $\frac{1}{3cos^{3}x}$ |  | **f)** $\sqrt{\frac{3sinx-2cosx}{5}}$ |
| **g)** $\sqrt{1+arcsinx}$ |  | **h)** $\frac{1}{arctanx}$ |  | **i)** $\sqrt{xe^{x}+x}$ |
| **j)** $\sin(\left(3x\right)+cos\frac{x}{5}+tan\sqrt{x})$ |  | **k)** $arcsin(2x)$ |  | **l)** $arctan\frac{1}{x}$ |
| **m)** $arctanlnx$ |  | **n)** $arccos\sqrt{x}$ |  | **o)** $arctan\frac{1+x}{1-x}$ |
| **p)** $e^{sin^{2}x}$ |  | **q)** $5e^{-x^{2}}$ |  | **r)** $x^{2}10^{2x}$ |
| **s)** $arccose^{x}$ |  | **t)** $ln^{2}x-ln(lnx)$ |  | **u)** $\arctan(\left(lnx\right))+ln\left(arctanx\right)$ |
| **v)** $\sqrt{lnx+1}+ln\left(\sqrt{x}+1\right)$ |  | **w)** $ln(2x+7)$ |  | **x)** $ln(1-x^{2})$ |
| **y)** $tan^{2}(5x)$ |  | **z)** $\frac{1}{2}sin⁡(x^{2})$ |  | **w)** $sin^{2}(x^{3})$ |
| **aa)** $e^{arctanx}$ |  | **bb)** $e^{cosx}$ |  | **cc)** $e^{x^{3}+1}$ |