Karla Marieka Palacios Tuy 2290-24-14588

Parcial Corto - Semana 7

1. $f(x) = e^{\tan x}$ $\quad u = \tan x$

$\tan^x = e^{x \ln(\tan x)}$

$e^{x\ln(\tan x)} \cdot \frac{d}{dx}(x \ln(\tan x))$

$f'(x) = (x \ln(\tan x))' = \ln(\tan x) + x \cdot \frac{1}{\tan x} \cdot \sec^2 x$

$f'(x) = (x \ln(\tan x))' = \ln(\tan x) + x \cdot \frac{\sec^2 x}{\tan x}$

$\tan^x = \tan^x \left(\ln(\tan x) + x \cdot \frac{\sec^2 x}{\tan x} \right)$

R// $f'(x) = e^{\tan x} \cdot \tan x \left(\ln(\tan x) + x \cdot \frac{\sec^2 x}{\tan x} \right)$

2. $f(x) = \cos(\sin(\sqrt{2^x}))$ $\quad u = \sqrt{2^x}$

$\frac{d}{dx}\cos = -\sin \cdot \frac{d}{dx}$ $\qquad \frac{d}{dx}\sin = \cos \cdot \frac{du}{dx}$

$u = \sqrt{2^x} = (2^x)^{1/2} = 2^{x/2}$

$\frac{d}{dx} 2^{x/2} = 2^{x/2} \ln 2 \cdot \frac{1}{2}$

$f'(x) = -\sin(\sin(\sqrt{2^x})) \cdot \cos(\sqrt{2^x}) \cdot \frac{\ln 2}{2} \cdot 2^{x/2}$

R// $f(x) = -\frac{\ln 2}{2} \cdot 2^{x/2} \cdot \sin(\sin(\sqrt{2^x})) \cdot \cos(\sqrt{2^x})$