

1 $f(x) = \text{sen} \frac{1}{2}x$

Nombre: Karla Priscila Ruano Navas.
 1- $f(x) = \text{sen} \frac{1}{2}x$
 $u = \frac{1}{2}x$ $f'(x) = \cos \frac{1}{2}x \cdot (\frac{1}{2}) = \frac{\cos \frac{x}{2}}{2}$

2 $f(x) = \cos(7-2x)$

2- $f(x) = \cos(7-2x)$
 $u = 7-2x$ $f'(x) = -\text{sen}(7-2x) \cdot (-2)$
 $u' = -2$ $= 2 \text{sen}(2x-7)$

3 $f(x) = 3 \text{tg} 2x$

3- $f(x) = 3 \text{tg} 2x$
 $u = 2x$ $f(x) = 3 \text{sec}^2(2x) \cdot (2)$
 $u' = 2$ $= 6 \text{sen}^2(2x)$

4 $f(x) = \text{sec}(5x+2)$

4- $f(x) = -\text{sec}(5x+2)$
 $u = 5x+2$ $f'(x) = -\text{sec}(5x+2) \text{tg}(5x+2) \cdot (5)$
 $u' = 5$ $= -5 \text{sec}(5x+2) \text{tg}(5x+2)$

5 $f(x) = \sqrt[3]{\text{sen} x}$

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 5 $f(x) = \sqrt[3]{\text{sen} x} = (\text{sen} x)^{\frac{1}{3}}$
 $y = \text{sen} x$ $f'(x) = \frac{1}{3} \text{sen} x^{-\frac{2}{3}} \cdot (\cos x)$
 $y' = \cos x$ $= \frac{\cos x}{3 \text{sen}^{\frac{2}{3}} x}$

6 $f(x) = \text{sen}^3 3x$

6- $f(x) = \text{sen}^3 3x$
 $y = 3x$ $f'(x) = 3 \text{sen}^2 3x \cdot \cos 3x \cdot (3)$
 $y' = 3$ $= 9 \text{sen}^2 3x \cos 3x$

7 $f(x) = \text{cotg}(3-2x)$

7- $f(x) = \text{cotg}(3-2x)$
 $y = 3-2x$ $f'(x) = -\text{csc}^2(3-2x) \cdot (-2)$
 $y' = -2$ $= 2 \text{csc}^2(2x-3)$

8 $f(x) = \cos \frac{x+1}{x-1}$

8- $f(x) = \cos \frac{x+1}{x-1}$
 $w = \frac{u}{v}$ $f'(x) = -\text{sen} \frac{x+1}{x-1} \cdot (\frac{-2}{(x-1)^2})$
 $w' = \frac{(x-1) - (x+1)}{(x-1)^2} = \frac{-2}{(x-1)^2}$ $= \frac{2 \text{sen} \frac{x+1}{x-1}}{(x-1)^2}$

9.-

$$f(x) = \cot(4x^2)$$

9 $f(x) = \cot(4x^2)$

$y = 4x^2$
 $y' = 8$

$f'(x) = -(\csc^2(4x^2)) \cdot (8x)$
 $= -8x \csc^2(4x^2)$

10.-

$$f(x) = \cot^2(4x)$$

10- $f(x) = \cot^2(4x)$

$y = 4x$
 $y' = 4$

$f'(x) = 2 \cot(4x) \cdot (-\csc^2(4x)) \cdot (4)$
 $= 8 \cot(4x) \cdot (-\csc^2(4x))$
 $= -8 \cot(4x) \csc^2(4x)$

11.-

$$f(x) = \sec(5x)$$

11- $f(x) = \sec(5x)$

$y = 5x$
 $y' = 5$

$f'(x) = \sec(5x) \cdot \tan(5x) \cdot (5)$
 $= 5 \sec(5x) \tan(5x)$

12.-

$$f(x) = \csc\left(\frac{x}{2}\right)$$

12 $f(x) = \csc\left(\frac{x}{2}\right)$
 $y = \frac{x}{2}$
 $y' = \frac{1}{2}$
 $f'(x) = -\csc\left(\frac{x}{2}\right) \cdot \cot\left(\frac{x}{2}\right) \cdot \left(\frac{1}{2}\right)$
 $= -\frac{\csc\frac{x}{2} \cot\frac{x}{2}}{2}$