

ACTIVIDAD 1 DE DERIVADAS

RELACIONA CADA UNA DE LAS SIGUIENTES FUNCIONES CON SU RESPECTIVO PROCEDIMIENTO Y DERIVADA CORRECTOS

$$y = x^2$$

$$y = \sqrt{x-2}$$

$$f(x) = 2x + 1$$

$$\frac{dy}{dx} = \lim_{\Delta x \rightarrow 0} \frac{\sqrt{x + \Delta x - 2} - \sqrt{x - 2}}{\Delta x}$$

$$\frac{dy}{dx} = \lim_{\Delta x \rightarrow 0} \frac{\sqrt{x + \Delta x - 2} - \sqrt{x - 2}}{\Delta x} \cdot \frac{\sqrt{x + \Delta x - 2} + \sqrt{x - 2}}{\sqrt{x + \Delta x - 2} + \sqrt{x - 2}}$$

$$\frac{dy}{dx} = \lim_{\Delta x \rightarrow 0} \frac{(\sqrt{x + \Delta x - 2})^2 + \sqrt{x - 2}\sqrt{x + \Delta x - 2} - \sqrt{x - 2}\sqrt{x + \Delta x - 2} - (\sqrt{x - 2})^2}{\Delta x(\sqrt{x + \Delta x - 2} + \sqrt{x - 2})}$$

$$\frac{dy}{dx} = \lim_{\Delta x \rightarrow 0} \frac{x + \Delta x - 2 - x + 2}{\Delta x(\sqrt{x + \Delta x - 2} + \sqrt{x - 2})}$$

$$\frac{dy}{dx} = \lim_{\Delta x \rightarrow 0} \frac{\Delta x}{\Delta x(\sqrt{x + \Delta x - 2} + \sqrt{x - 2})}$$

$$\frac{dy}{dx} = \lim_{\Delta x \rightarrow 0} \frac{1}{\sqrt{x + \Delta x - 2} + \sqrt{x - 2}}$$

$$\frac{dy}{dx} = \frac{1}{(\sqrt{x + 0 - 2} + \sqrt{x - 2})}$$

$$\frac{dy}{dx} = \frac{1}{(\sqrt{x - 2})^2}$$

$$\frac{dy}{dx} = \lim_{\Delta x \rightarrow 0} \frac{2(x + \Delta x) + 1 - (2x + 1)}{\Delta x}$$

$$\frac{dy}{dx} = \lim_{\Delta x \rightarrow 0} \frac{2x + 2\Delta x + 1 - 2x - 1}{\Delta x}$$

$$\frac{dy}{dx} = \lim_{\Delta x \rightarrow 0} \frac{2\Delta x}{\Delta x}$$

$$\frac{dy}{dx} = \lim_{\Delta x \rightarrow 0} 2$$

$$\frac{dy}{dx} = 2$$

$$\frac{dy}{dx} = \lim_{\Delta x \rightarrow 0} \frac{(x + \Delta x)^2 - x^2}{\Delta x}$$

$$\frac{dy}{dx} = \lim_{\Delta x \rightarrow 0} \frac{x^2 + 2x\Delta x + \Delta x^2 - x^2}{\Delta x}$$

$$\frac{dy}{dx} = \lim_{\Delta x \rightarrow 0} \frac{2x\Delta x + \Delta x^2}{\Delta x}$$

$$\frac{dy}{dx} = \lim_{\Delta x \rightarrow 0} \frac{\Delta x(2x + \Delta x)}{\Delta x}$$

$$\frac{dy}{dx} = \lim_{\Delta x \rightarrow 0} 2x + \Delta x$$