DERIVADAS POR DEFINICIÓN

ACTIVIDAD 1 DE DERIVADAS

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

$y = x^2$

$y = \sqrt{x-2}$

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

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

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

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

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

$$\frac{dy}{dx} = lim_{\Delta x \to 0} \frac{1}{\left(\sqrt{x+\Delta x-2}\sqrt{x-2}\right)}$$

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

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

$f(x) = 2x + 1$

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

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

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

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

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

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

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

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

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

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

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