

Tutoria I

función Inversa

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

$$y = 2x + 1$$

$$y - 1 = 2x$$

$$\frac{y - 1}{2} = x \longrightarrow f^{-1}(x) = \frac{x - 1}{2}$$

$$f(x) = \frac{2x - 3}{4}$$

$$y = \frac{2x - 3}{4}$$

$$y \cdot 4 = 2x - 3$$

$$4x + 3 = 2x$$

$$\frac{4x + 3}{2} = x \longrightarrow f^{-1}(x) = \frac{4x + 3}{2}$$

Composición

$$f(x) = 3x + 2 \quad g(x) = \frac{x+3}{2x+1}$$

$$(f \circ g)(x) = 3 \left(\frac{x+3}{2x+1} \right) + 2$$

$$f(g(x)) = \frac{3x+9}{2x+1} + 2$$

Contexto

$$E(k) = \frac{2k+5}{k} \quad / \text{ Inversa}$$

$$y = \frac{2k+5}{k}$$

$$y \cdot k = 2k + 5$$

$$y \cdot k - 2k = 5$$

$$k(y - 2) = 5$$

$$k = \frac{5}{y-2}$$

$$E^{-1}(x) = \frac{5}{x-2}$$

$$f(t) = \frac{2t^2 + 5t}{7} \quad \text{Componer (k of)}$$

$$E(f(t)) = 2 \cdot \left(\frac{2t^2 + 5t}{7} \right) + 5$$

$$\frac{2t^2 + 5t}{7}$$

$$E(t) = \frac{35 + 4t^2 + 10t}{2t^2 + 5t}$$

Convertir grados a rad.

$$\frac{\pi}{2} \text{ a grados} = \frac{\pi}{2} \cdot 180 = 90^\circ$$

$$\pi$$

$$278^\circ \text{ a rad} = \frac{278 \cdot \pi}{180} = \frac{139\pi}{90} \text{ rad}$$

reduir

$$\frac{\sin(x) - \sin^3(x)}{\cos(x) - \cos^3(x)} \quad / \text{reescribir.}$$

$$\frac{\sin(x) - (\sin(x) \cdot \sin^2(x))}{\cos(x) - (\cos(x) \cdot \cos^2(x))} \quad / \text{factorizar.}$$

$$\frac{\sin(x) (1 - \sin^2(x))}{\cos(x) (1 - \cos^2(x))} \quad / \text{Identidad}$$

$1 = \sin^2 + \cos^2(x)$

$$\frac{\cancel{\sin(x)} \cdot \cos^2(x)}{\cos(x) \cdot \cancel{\sin^2(x)}}$$

$$\frac{\cos(x)}{\sin(x)} = \cot(x) \quad //$$

Comprobar

$$\tan^2(x) - \sec^2(x) = \sec^2(x) \cdot \tan^2(x)$$

Trabajo

$$\frac{\sec^2(x) - \sec^2(x)}{\cos^2(x)} \quad / \quad \frac{\sec^2(x)}{\cos^2(x)} = \tan^2(x)$$

Iguales den.

$$\frac{\sec^2(x) - \sec^2(x) \cdot \cos^2(x)}{\cos^2(x)} \quad / \quad \text{factorizar}$$

$$\frac{\sec^2(x) (1 - \cos^2(x))}{\cos^2(x)} \quad / \quad \text{Identidad}$$

$\sec^2(x) = 1 - \cos^2(x)$

$$\frac{\sec^2(x) \cdot \sec^2(x)}{\cos^2(x)} \quad / \quad \text{distributividad}$$

$$\frac{\sec^2(x)}{\cos^2(x)} \cdot \sec^2(x) \quad / \quad \text{Identidad}$$

$\frac{\sec^2(x)}{\cos^2(x)} = \tan^2(x)$

$$\tan^2(x) = \sec^2(x) //$$

Es Verdadero
