

$$y' < 0 \text{ for all } X$$

When we want to prove that a function is decreasing – we have to show $y' < 0$

example: $y = \frac{3}{x-1} \quad x \neq 1$

$$y' = \frac{0-1 \cdot 3}{(x-1)^2} = \frac{-3}{(x-1)^2} < 0$$

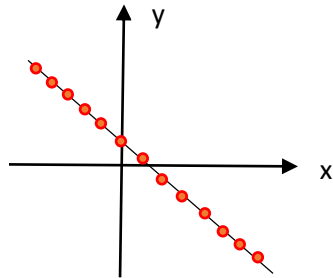
$$y = e^{-x}$$

$$y' = -1 \cdot e^{-x} = \frac{-1}{e^x} < 0;$$

$$y = 3 + 2 \cdot \frac{\cos x}{\sin x - \cos x} \quad \sin x \neq \cos x \quad ; \tan x \neq 1$$

$$y' = \frac{-\sin x(\sin x - \cos x) - \cos x(\cos x + \sin x)}{(\sin x - \cos x)^2}$$

$$y' = 2 \cdot \frac{-1}{(\sin x - \cos x)^2} = \frac{-2}{(\sin x - \cos x)^2} < 0$$



$$y = \frac{1}{2} - x$$

$$y' = -1 < 0$$