



Air maths tuition

Interact, engage and perform

Inverse functions: Example 3

if $f(x) = 2 \ln(3x-1)$, $x > \frac{1}{3}$. Find $f^{-1}(x)$

$$\text{let } x = 2 \ln(3y-1)$$

$$\therefore \frac{x}{2} = \ln(3y-1)$$

$$\therefore e^{x/2} = 3y-1$$

$$\therefore e^{x/2} + 1 = 3y$$

$$\therefore y = \frac{1}{3}(e^{x/2} + 1)$$

$$\therefore f^{-1}(x) = \frac{1}{3}(e^{x/2} + 1)$$



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