Student Name: _____ **Score:**

Derivatives of Logarithmic Functions

Find the derivatives of logarithmic functions:

$y = \ln 5x$

$y = \ln\ x^2$

$y = 2\ln(3$ $- 2x)^3$

$y = \ln\ (\sin$ x

$y = \ln\ (\cos$ $+ 3)\ \ln(x - 1)$

$y = \ln(70x$

$y = \frac{2}{5}\ln(-4x + 1)$

$y = \frac{-1}{2}\ln\left(x + \frac{5}{3}\right)$

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Answer key

Derivatives of Logarithmic Functions

$\frac{dy}{dx} = \frac{1}{x}$

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

$\frac{dy}{dx} = \frac{12x}{3x^2 - 1}$

$\frac{dy}{dx} = \frac{-6}{\text{- } 2x}$

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

$\text{ı } x)^2 \ (3 + \ln x)$

$\frac{dy}{dx} = -2x \text{ t}$

$\frac{\text{ı}(x+3)}{x-1} + \frac{\ln(x-1)}{x+3}$

$\frac{dy}{dx} = \frac{140x}{70x^2 + }$

$\frac{dy}{dx} = -\frac{8}{5\,(-4x+1)}$

$\frac{dy}{dx} = -\frac{1}{2\left(x + \frac{5}{3}\right)}$