

Class Drill 6 Derivatives of Functions Containing Logarithms

(A) Let $f(x) = 12 \ln\left(\frac{13}{x}\right)$. Find $f'(x)$. Hint: Start by rewriting f using a rule of logarithms.

(B) Let $f(x) = 12 \ln(x^{13})$. Find $f'(x)$. Hint: Start by rewriting f using a rule of logarithms.

(C) Let $f(x) = 12x \ln(13)$. Find $f'(x)$.

(D) The goal is to find the equation of the line tangent to the graph of the function

$$f(x) = 5 + \ln(x^3)$$

at the point where $x = e^2$.

Remember that the approach is to build the general form of the equation for the tangent line (in point-slope form):

$$(y - f(a)) = f'(a) \cdot (x - a)$$

Question (D) continues on back. →

Get Parts

Identify the number a .

Find $f(a)$.

Find $f'(x)$. Hint: Start by rewriting f using a rule of logarithms.

Find $f'(a)$.

Substitute Parts Into the General Tangent Line Equation

Convert the Equation to Slope Intercept Form