

Mathematics Department
2020/2021

Name:	Derivatives of Exponential and Logarithmic Functions	Date
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Q1: Let $f(x) = 5^x$ find $f'(x) =$

a) $f'(x) = 5^x$	b) $f'(x) = x5^{x-1}$
c) $f'(x) = 5^x \ln 5$	d) $f'(x) = 5x^4$

Q2: $f(x) = 8^x \sin x$, $f'(x) =$

a) $f'(x) = 8^x \sin x + 8^x \cos x$	b) $f'(x) = 8^x \ln 8 \sin x + 8^x \cos x$
c) $f'(x) = 8^x + \cos x$	d) $f'(x) = 8^x \ln 8 \sin x - 8^x \cos x$

Q3: $f(x) = \ln(\tan x)$ find $f'(x) = \dots \dots \dots$

a) $f'(x) = \frac{\sec^2 x}{\tan x}$	b) $f'(x) = \frac{\sec x}{\tan x}$
c) $f'(x) = \sec^2 x \ln(\tan x)$	d) $f'(x) = \frac{\tan x}{\sec^2 x}$

Q4: $f(x) = x^{\sin x}$ find $f'(x) = \dots \dots \dots$

a) $f'(x) = x^{\sin x} \ln x$	b) $f'(x) = x^{\sin x} \cos x + \frac{1}{x}$
c) $f'(x) = x^{\sin x} (\cos x \ln x + \frac{\sin x}{x})$	d) $f'(x) = \cos x \ln x + \frac{\sin x}{x}$