Mathematics Department
2020/2021

Name:	**Derivatives of Exponential and Logarithmic Functions**	Date

Q1: Let $f(x) = 5^x$ $\quad find \quad f'(x) =$

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

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

a) $f'(x) = 8^x sinx + 8^x cosx$	b) $f'(x) = 8^x ln8 \, sinx + 8^x cos \, x$
c) $f'(x) = 8^x + cosx$	d) $f'(x) = 8^x ln8 \, sinx - 8^x cos \, x$

Q3: $f(x) = ln(tan \, x)$ $\quad find \, f'(x) = \cdots \ldots \ldots \ldots \ldots$

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

Q4: $f(x) = x^{sinx}$ $\quad find \, f'(x) = \cdots \ldots \ldots \ldots \ldots$

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