

UNIVERSITY OF SASKATCHEWAN
Department of Mathematics & Statistics
Mathematics 101.3 Practice Quiz #3

November 19, 1999

Time: 50 minutes

Instructor: *Doug MacLean*

CLOSED BOOK — NO CALCULATORS PERMITTED

Each question is worth 4%

The possible answers to all questions are the digits in the **ANSWER SET**:

(A) 0 (B) 1 (C) 2 (D) 3 (E) 4 (F) 5 (G) 6 (H) 7 (I) 8 (J) 9

Evaluate the logarithms:

If $\log_2 2048 = 10a + b$ then **(1)** $a =$ and **(2)** $b =$

If $\log_9 243 = \frac{c}{d}$ then **(3)** $c =$ and **(4)** $d =$

If $\log_8 128 = \frac{e}{f}$ then **(5)** $e =$ and **(6)** $f =$

Find $f'(1)$ if:

(7) $f(x) = (2x - 1)^4$ **(8)** $f(x) = 16\sqrt{x^2 + 3}$ **(9)** $f(x) = 8\frac{x-1}{x+1}$

(10) $f(x) = 8\ln(3x + 5)$ **(11)** $f(x) = 8e^{\frac{x-1}{2}}$ **(12)** $f(x) = \frac{1}{20}(x^2 + 1)^5$

(13) $f(x) = 60\ln\left(\frac{x+2}{x+3}\right)$ **(14)** $f(x) = \frac{256x^3}{(x+3)^3}$ **(15)** $f(x) = \frac{6}{11}\ln(x+1)^4(x+2)^5$

(16) $f(x) = x^3e^{-x+1}$ **(17)** $f(x) = \frac{x^3e}{e^x}$ **(18)** $f(x) = -\frac{e^{x-1}}{x^3}$

(19) $f(x) = \frac{1}{\ln 2}2^{x^2-1}$ **(20)** $f(x) = \frac{3^x}{\ln 3}$ **(21)** $f(x) = 2\pi^3 + 9x$

Solve for x :

(22) $\log_5 5^x = 7$

(23) $\log_3 x^2 + \log_3 x = 3$

(24) $\log_{10} x^{\frac{5}{2}} - \log_{10} \sqrt{x} = \log_{10} 25$

(25) $\log_7 7^{2x} = 8$