Math 31

Exponential and Logarithmic Functions Quiz

Name _____

Date _____

1. Evaluate $e^{2\ln 3}$

[1]

2. Find the exact solution of the equation $e^{5-2x} = 3$.

[1]

3. Differentiate with respect to x. [2 marks each]

   a) $y = e^{4x^5}$

   b) $y = e^{\tan x^2}$

c) $y = 5^{2x}$

d) $y = \dfrac{e^{2x}}{3x+1}$

e) $y = 3x^2 \ln\left(x^2 + 5x - 6\right)$

f) $y = \ln\left(\dfrac{4}{\sqrt{2x}}\right)$

4. Use logarithmic differentiation to find the derivative of

[3] $\qquad y = x^{3x^2}$

5. Discuss the curve $y = \ln\left(100 - x^2\right)$ under the following headings.

   a) Domain & asymptotes.
   b) Intercepts, exact values.
   c) Intervals of increase or decrease.
   d) Concavity.

[5]