

Name: _____

Math 141 – Quiz Unit 4

Score: ____/____

To receive full credit, clear and correct work as discussed in class must be shown for each problem unless otherwise indicated. Only answers to applications should be given as decimals, and these answers should be correctly rounded to at least two decimal places when reasonable. Units should always be included with answers. Any variable used when solving applications should be clearly defined. Work on scratch paper will not be graded. Put all work you want graded on the test and all answers on the answer blank.

Remember: you will not be allowed to use calculators on exam 4. You should try to do all of this without a calculator to make sure you're ready.

1. Evaluate. Your answer should not include any logs.

a) $\log_3 27 =$ _____

f) $\log_{27} 9 =$ _____

b) $\ln\left(\frac{1}{e}\right) =$ _____

g) $5^{\log_5 \pi} =$ _____

c) $\log \sqrt[3]{100} =$ _____

h) $\log 3 - \log 60 + \log 2 =$ _____

d) $\log_{36} 6 =$ _____

i) $6^{\log_6 11 - 2 \log_6 5} =$ _____

e) $\log_{1/2} 8 =$ _____

j) $\log_2(2 \log_3(9)) =$ _____

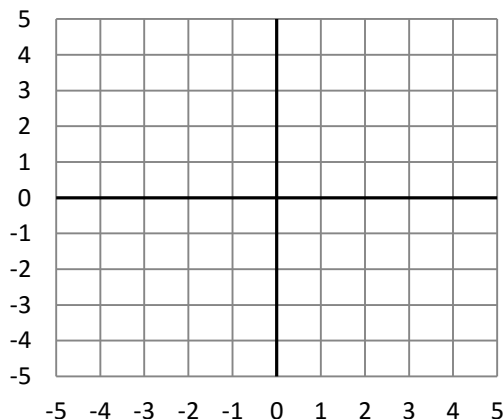
2. The points (1, 0) and (3, 1) are on the graph of $f(x) = \log_3 x$.

a) Find **exact** coordinates of two other points that are on the graph of $f(x) = \log_3 x$.

b) Use transformations to determine where the points (1, 0) and (3, 1) end up when graphing $f(x) = 3 \log_3(-(x - 2))$.

c) State the domain of $f(x) = 3 \log_3(-(x - 2))$.

d) Sketch a graph of $f(x) = 3 \log_3(-(x - 2))$. Be sure to draw your asymptote.



3. Write the following as a single logarithm and simplify.

$$2 \ln(3a) - 5 \ln a + \ln(2a^2)$$

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4. Given that $\log_b x = 2.1$, $\log_b y = 0.9$ and $\log_b z = 3.5$ use log properties to find the value of each of the following expressions.

a) $\log_b(\sqrt{xy})$

b) $\log_b\left(\frac{y^2}{z}\right)$
