Quiz, Fall Week 8 Name: _____

Points possible: 100 Math 1050-90, Fall 2021, Due 10/26 at 11:59 p.m.

Rules/Suggestions: Write with a dark pencil, so that your work is visible. **You are graded on your work, not just answers. Even if you do calculations in your head or on scratch, show work if space is provided.** Write the final answer in the box.

Notes: You are on your honor for this to be your own work. (You can ask for help on quiz material, but you should not ask for help on specific problems.)

1. (10 points) Use the change of base property to convert the given expression to an expression with base e.

$$\log_3(36)$$

Answer:

2. (10 points) Solve EXACTLY. Write the answer in fractions or integers, and your answer may contain one or more logs or natural logs.

$$4^{5x} = 12$$

$x =$

3. (10 points) Solve EXACTLY. Check that your answer is not extraneous before entering it.

$$\log_4(x-1) + \log_4(x-13) = 3$$

$x =$

4. (10 points) Expand the logarithm after factoring.

$$\log_5(x^2 - 36)$$

Answer:

5. (10 points) Condense the expression so it contains a single log.

$$\ln(6x) + 5\ln(y) - 2\ln(z)$$

Answer:

6. (10 points) If $\ln(a) = 7, \ln(b) = 9$, and $\ln(c) = 8$, evaluate the following expression:

$$\ln\left(\frac{a^2}{b^3c^4}\right)$$

Answer:

7. Solve the equations. Write EXACT solutions. (You should not use a calculator... if you are, you are likely not finding EXACT solutions.)

(7.1) (5 points) $e^{2x} - e^x = 6$

$x =$

(7.2) (5 points) $5^{x+3} = 5^{4x-12}$

$x =$

8. Find the requested information for the function, writing "none" if appropriate. Write asymptotes as equations and intercepts as ordered pairs.

$$f(x) = 3^{x-2} + 1$$

(8.1) (6 points)

Domain:
Range:

(8.2) (6 points)

x-intercept:
y-intercept:

(8.3) (6 points) (Hint: it may be easier to find end behavior AFTER you have graphed.)

Asymptote:
End behavior: As $x \to -\infty$, $f(x) \to$ _____ As $x \to \infty$, $f(x) \to$ _____

(8.4) (12 points) Sketch the graph, carefully marking intercept(s), the asymptote, and one point with INTEGER coordinates that the function goes through.