

Student: _____
Date: _____
Time: _____

Instructor: Josh Ducey
Program: Math 199E (Version for Math
205), Fall 2014
Test Bank: MyMathTest: Basic Algebra,
Precalculus and Calculus

Assignment: Qualifier 5: Exponential and
Logarithmic Functions

1. Solve the following logarithmic equation. Be sure to reject any value of x that is not in the domain of the original logarithmic expression. Give the exact answer.

$$9 + 5 \ln x = 39$$

What is the solution in terms of e ?

$$x = \square$$

2. Evaluate the expression without using a calculator.

$$\ln e^3$$

$$\ln e^3 = \square$$

3. Solve the following exponential equation. Express the solution set in terms of natural logarithms.

$$5^{2x} + 5^x - 56 = 0$$

What is the solution in terms of natural logarithms?

$$x = \square$$

(Type an exact solution, using logarithmic functions as needed.)

4. Solve the following exponential equation by expressing each side as a power of the same base and then equating exponents.

$$625^x = \frac{1}{\sqrt{5}}$$

$$x = \square$$

5. Find the exact value of the logarithm without using a calculator.

$$\log_{12} 144$$

$$\log_{12} 144 = \square$$

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6. Solve the following logarithmic equation. Be sure to reject any value of x that is not in the domain of the original logarithmic expression. Give the exact answer.

$$\log_2(7x + 6) = 2$$

$x = \square$ (Type an integer or a simplified fraction.)

7. Solve the following exponential equation. Express the solution set in terms of natural logarithms.

$$e^{4x} + 4e^{2x} - 32 = 0$$

What is the solution in terms of natural logarithms?

$x = \square$

(Type an exact solution, using logarithm functions as needed.)

8. Find the domain of the logarithmic function.

$$f(x) = \ln(x^2 - 2x - 8)$$

The domain of f is \square . (Type your answer in interval notation.)

9. Solve the logarithmic equation. Be sure to reject any value of x that is not in the domain of the original logarithmic expressions. Give the exact answer.

$$\log_3(x + 2) + \log_3(x - 6) = 2$$

Select the correct choice below and, if necessary, fill in the answer box to complete your answer.

A. $x = \square$ (Simplify your answer. Use a comma to separate answers as needed.)

B. There is no solution.

10. Solve the following exponential equation by expressing each side as a power of the same base and then equating exponents.

$$9^{x+7} = 243^{x-2}$$

$x = \square$