MAT 1053 - MODULE 6.2 PRE-CLASS WORK myUTSA ID:_____

MODULE 6.2 - EXPONENTIAL AND LOGARITHMIC EQUATIONS

LEARNING OBJECTIVES

In this section, you will:

- Use like bases to solve exponential equations.
- Use logarithms to solve exponential equations.
- Use the definition of a logarithm to solve logarithmic equations.
- Use the one-to-one property of logarithms to solve logarithmic equations.
- Solve applied problems involving exponential and logarithmic equations.

USING LIKE BASES TO SOLVE EXPONENTIAL EQUATIONS

- State the definition of the one-to-one property of exponential functions to solve exponential equations.

How To:... Given an exponential equation with unlike bases, use the one-to-one property to solve it.

SOLVING EXPONENTIAL EQUATIONS USING LOGARITHMS

How To:... Given an exponential equation in which a common base cannot be found, solve for the unknown.

USING THE DEFINITION OF A LOGARITHM TO SOLVE LOGARITHMIC EQUATIONS

- State the definition for using a logarithm to solve logarithmic equations.

USING THE ONE-TO-ONE PROPERTY OF LOGARITHMS TO SOLVE LOGARITHMIC EQUATIONS

- State the definition for using the one-to-one property of logarithms to solve logarithmic equations.

How To:... Given an equation containing logarithms, solve it using the one-to-one property.

MODULE 6.2 - CLASS EXAMPLES

Solve the exponential equations below.

1, $5^{2x} = 5^{3x+2}$

2. $5^{2x} = 25^{3x+2}$

3. $5^{x} = \sqrt{5}$

4. $2^{x} = 3^{x+1}$

5. $3e^{0.5t} = 11$

6. $3 + e^{2t} = 7e^{2t}$

Solve the logarithmic equations below.

7. $6 + \ln(x) = 10$

8. $2\ln(x + 1) = 10$

9. $log_7(x + 12) = log_7(12x)$

10. $2\log(8n + 4) + 6 = 10$

11. $\ln(x - 2) - \ln(x) = \ln(54)$