/15

Algebra 2- Chapter 7
LT Quiz #4

Name Key
Per ____

Solve each equation (3 points each):

1. $2^{5x-1} = 32$

$2^{5x-1} = 2^5$ $\quad 5x-1=5$

$5x=6$

$x=6/5$

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

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

$3x = 2x+2$

$x=2$

3. $2^x = 3$

$\log 2^x = \log 3$

$x\log 2 = \log 3$ $\quad x = \frac{\log 3}{\log 2}$

4. $\log 2x = -1$

$10^{\log 2x} = 10^{-1}$

$\frac{2x}{2} = \frac{10^{-1}}{2}$ $\quad x = .05$

5. $\log x - \log 3 = 8$

$10^{\log \frac{x}{3}} = 10^8$

$\frac{x}{3} = 10^8$

1. $x = 6/5$
2. $x = 2$
3. $x = 1.58$
4. $x = .05$
5. 300,000,000

/15

Algebra 2 Ch. 7 | /12 | Name: _____

Learning Target Quiz #5 | Per. _____

LT #5 Natural Logarithms

Evaluate or Solve for the variable: (2 pts each)

1. $\frac{5e^x}{5} = \frac{25}{5}$ $\ln e^x = \ln 5$

$x \ln e = \ln 5$ $\quad x = \ln 5$

2. $\ln(3x + 2) = 3$

$e^{\ln(3x+2)} = e^3$

$3x + 2 = e^3$

$\frac{3x}{3} = \frac{e^3 - 2}{3}$

$x = \frac{e^3 - 2}{3}$

3. $\ln(3) + \ln(x + 3) = 2$

$\ln 3(x+3) = 2$

$e^{\ln 3(x+3)} = e^2$

$3x + 9 = e^2$

$3x = e^2 - 9$

4. Ms. Watson invests $100 into an account that earns 5% interest compounded continuously. How many years will it take her to *double her money*? **All work using logs must be shown for credit.**

$A = Pe^{rt}$

$\frac{200}{100} = \frac{100e^{(.05)(t)}}{100}$

$2 = e^{.05t}$

$\ln 2 = \ln e^{.05t}$

$\ln 2 = 0.05t$

1. $x = 1.61$
2. $x = 6.03$
3. $x = -0.54$
4. $t \approx 14$ years