Exponential Functions 7 – Solving Exponential Equations
Homework #12

Name _____

Per _____ Date _____

1) Maria solved her problem wrong.

   a) Which step contains her mistake? Why?

   b) Solve the problem correctly.

Step 1:	$4^{x+1} = 8^x$
Step 2:	$\log_4 4^{x+1} = \log_4 8^x$
Step 3:	$x + 1 = x \log_4 8$
Step 4:	$x + 1 = 2x$
Step 5:	$1 = x$

In 2–10, solve the equation. Round to 3 decimal places. Check your answer.

2) $e^{-x} = 6$

3) $2^x = 15$

4) $4^x - 5 = 3$

5) $0.25^x - 0.5 = 2$

6) $1.2e^{-5x} + 2.6 = 3$

7) $10^{3x-1} + 4 = 32$

8) $-5e^{-x} + 9 = 6$ **9)** $3(4)^{2x} + 1 = 5$ **10)** $36^{x-9} = 6^{4x}$

11) You deposit \$500 in an account that pays 2.5% annual interest compounded continuously. How long will it take for the balance to double?

12) The first permanent English colony in America was established in Jamestown, Virginia, in 1607. From 1620 through 1780, the population P (in thousands) of colonial America can be modeled by the equation $P = 8863(1.04)^t$ where t is the number of years since 1620. When was the population of colonial America about 345,000?

13) You deposit \$2000 in an account that pays 2% annual interest compounded quarterly. How long will it take for the balance to reach \$2400?