AFM UNIT 1 REVIEW SHEET Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

I. Determine which functions show exponential growth or decay. Then find the rate of growth or decay.

1. y = 5.6(1.23)x 2. y = 0.04(.92)x 3. y = 8.99(1.02)x

II. Rewrite as a logarithm:

 4. 43 = 64 5. 10-2 =  6. 54 = 625

III. Rewrite as an exponential equation:

 7. log2 16 = 4 8. log8  = -1 9. log .01 = -2

IV. Expand the expression, simplify when possible:

 10. log2 3n3  11. log  12. log4

 13. 14. 15.

V. Condense the following, simplify when possible:

 16. log 4 + log 5 – log 2 17. 2log4x – 3log4y 18. log65 +

 19. 20.

VI. Write the following using change of base, then evaluate:

 21. log59 22. log119.4 23. log6 

VII. Solve for x: SHOW ALL WORK

 24. 3x = 8 25. 26. 93x-6 = 21

 27. log x + 4 = 8 28. 2 ln x = 3 29. log2(x + 2) = log2(3x - 4)

 30. log x = 2log 6 – log 9 31. log3(x2 - 25) = 2 32.

 33. log2(x2 + 4) = log2(6x – 4) 34. ln(2x + 1) – ln( 3) = 2 35. 2e3x = 18

36. 37. e2x – ex – 30 = 0 38.

VIII. Write an exponential model for each problem and solve:

39. Ms. Norris buys a condo at the beach for $195,000. The condo’s value increases at a rate of 13.2% per year.

a) Find the value of the condo after 6 years. B) When will the condo be worth $500,000?

40. Mrs. Carroll buys a new RV worth $56,000 to take her family on a trip around the country. The RV depreciates at a rate of 21% per year. She plans to keep the RV for 5 years and then sell it. What will the RV be worth when Mrs. Carroll sells it?

41. A piece of furniture valued at $25,000 depreciates at a steady rate of 10% annually. In how many years will it be worth $5000?

42. You bought a car for $22,000 that’s value decreases 12% each year. When it be worth half its original value?

43. 5 years ago Mrs. Murphy bought an antique. It’s now valued at $82.28, and its value increases 8% each year. How much did Mrs. Murphy originally pay for the antique?

44. Find the accumulated amount in your bank account if you deposit $1,250.00 in an account paying 8% interest compounded weekly for 5 years.

45. If you invest $5000, compounded semiannually, and have $6850 after 6 years, what rate of interest did you earn?

46. How long will it take to triple your money in an account paying 5 % interest compounded quarterly?

47. Mike deposits $800 in an account that pays 10.6%, compounded continuously. In how many years will the balance be $1150?

48. Two brothers, Bobby and John, each deposit $200 in a savings account. Bobby’s account pays 7% annual interest compounded annually. John’s account pays 7% compounded quarterly. Which brother has a larger balance by the end of the year? By how much?

49. Find the amount in an account after 15 years if $5000 was initially invested and the account earns 8% annual interest compounded quarterly.