

## SM3-A HW #12-5 (Unit 11 Test Weak Areas)

Date \_\_\_\_\_ Period \_\_\_\_\_

- 1) The amount of money in a bank account (as a function of time) that is compounded is given by

$$A(t) = P \left( 1 + \frac{r}{k} \right)^{kt}$$

where P is the "principal", 'r' is the annual interest rate, 'k' is the number of times interest is paid per year, and 't' is the number of years the money has been in the account. How long does it take for the principal to triple in an account earning 6.5% annual interest compounded monthly? (solve either algebraically or graphically).

- 2) The amount of money in a bank account (as a function of time) that is compounded is given by

$$A(t) = P \left( 1 + \frac{r}{k} \right)^{kt}$$

where P is the "principal", 'r' is the annual interest rate, 'k' is the number of times interest is paid per year, and 't' is the number of years the money has been in the account. How long does it take for the principal to double in an account earning 4.5% annual interest compounded daily? (solve either algebraically or graphically).

**Find the inverse of each function.**

3)  $g(x) = -x^5 - 2$

4)  $g(x) = (x + 2)^3 - 2$

5)  $g(x) = \frac{5x}{4x - 3} - 2$

$g^{-1}(x) = ?$

**Solve each equation.**

6)  $\log_{12} (v - 10) + 9 = 12$

7)  $-5 + \log_5 -9p = -7$

8)  $-6 + \log_8 (x + 4) = -6$

**Solve each equation. Round your answers to the nearest ten-thousandth.**

9)  $-17^{x-1} = -44$

10)  $e^{-6v} - 1 = 65$

11)  $20^{6x} - 5 = 33$

**Solve each system by elimination. Show your work! (No work--no points).**

12)  $4x - 6y = 4$   
 $-4x + 6y = 2$

13)  $5x - 5y = 10$   
 $-5x - y = 2$

**Find all zeros.**

14)  $f(x) = 3x^3 + 5x^2 + 2x$

15)  $f(x) = x^4 - 7x^2 + 10$

**Solve each system by substitution. Show your work!**

16)  $y = 2x - 6$   
 $y = -3x - 6$

17)  $y = 5x + 2$   
 $y = -4x + 2$

18) Solve:  
 $2m^2 - 5m - 7 = 0$

19) Solve:  
 $2x^2 + 15x + 18 = 0$

20) Solve:  
 $n^2 - 18n + 32 = 0$

21) Solve:  
 $x^2 - 6x - 43 = 0$

**Solve the system.**

$$\begin{aligned} 22) \quad & 4x + y + 2z = 7 \\ & 2x + 6y + 4z = 4 \\ & -5x - y + 3z = 2 \end{aligned}$$

$$\begin{aligned} 23) \quad & 5x + 3y - 4z = -17 \\ & 3x - 2y - 6z = -2 \\ & 6x + 5y + 6z = 5 \end{aligned}$$