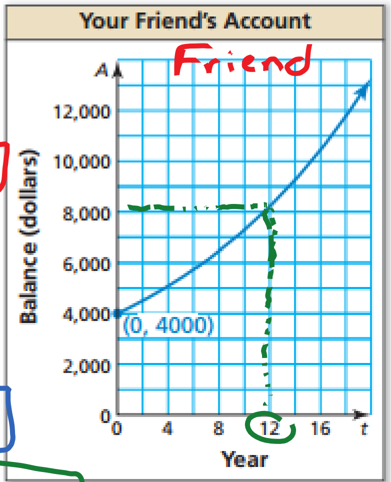
6.1-6.3 Review

1. The value of a home y (in thousands of dollars) is given by $y = 105(1.02)^t$, where t is the number of years since 2010.

a. Tell whether the model represents exponential growth or exponential decay.

b. Identify the annual percent increase or decrease in the value of the home.

c. Estimate the year when the value of the home is $111,000.



2. You and your friend each have accounts that earn annual interest compounded continuously. Use the graph for the balance of your friend's account over time. The balance A (in dollars) of your account after t years can be modeled by $A = 4100e^{0.05t}$

a.) Which account has a greater principal?

b.) What is your interest rate?

c.) What is your balance after 10 years?

d.) Which account has a greater balance after 12 years?

Write each equation in logarithmic form.

3. $6^3 = 216$ 4. $5^{-2} = \frac{1}{25}$ 5. $11^0 = 1$

Write each equation in exponential form.

6. $4 = \ln e^4$ **7.** $\log 1000 = 3$ 8. **$-2 = \log 0.01$**

Use exponential form to evaluate the logarithm.

9. $\log_2 64$ **10.** $\log_{27} 3$ **11.** $\log 1000$

Simplify the expression.

12. $\log 10{,}000^x$ 13. $e^{-2} \bullet e^8$ 14. $\ln \sqrt[3]{e^x}$

Evaluate using your calculator: **19.** $\log 21$ **20.** $\ln 0.54$

6.1-6.3 Review HW Name________________________________

1. You deposit \$3000 into a bank account that pays 1.25% annual interest, compounded monthly. How much interest does the account earn after 4 years?

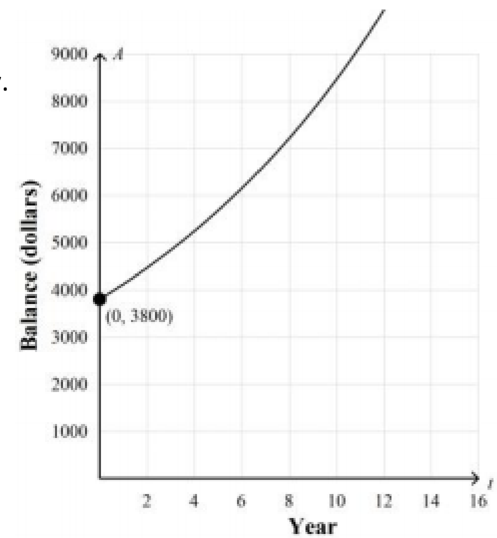
2. The value of a home y (in thousands of dollars) is given by $y = 120(1.03)^t$, where t is the number of years since 2010.

a. Tell whether the model represents exponential growth or exponential decay.

b. Identify the annual percent increase or decrease in the value of the home.

c. Estimate the year when the value of the home is \$139,000.

3. You and your friend have accounts that earn interest compounded continuously. The graph shows the account balance of your friend. Your balance is given by the equation $3900e^{.05t}$.



a.) Which account has a greater principal?

b.) What is your interest rate?

c.) What is your balance after 6 years?

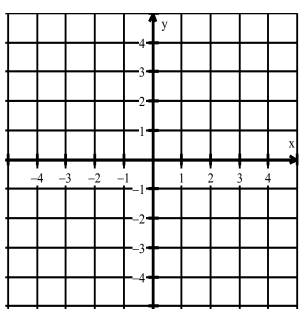
d.) Which account has a greater balance after 6 years?

4. Graph $y=2^x$

Is the model growth or decay?

What is the growth/decay factor?

Find domain and range.



5. Simplify

a. $e^{-2} \bullet e^{8}$

b. $\ln e^{3x}$

c. $\log 100^{x}$

d. $\sqrt{49e^{10x}}$

Write each equation in logarithmic form.

6. $4^{-3} = \frac{1}{64}$

7. $5^{-2} = \frac{1}{25}$

8. $8^{-1} = \frac{1}{8}$

9. $64^{\frac{1}{2}} = 8$

Rewrite the equation in logarithmic form.

10. $10^2 = 100$

11. $5^0 = 1$

12. $e^{-1} = \frac{1}{e}$

13. $6^3 = 216$

Use exponential form to evaluate the logarithm.

14. $\log_4 64$

15. $\log_3 \frac{1}{243}$

16. $\log_{343} 7$

Warm-Up

Evaluate the logarithm.

a. $\log_2 32$

b. $\ln e^6$

c. $\log \frac{1}{100}$

d. $\log_{49} 7$