Chapter 8 Test Review 2

1) Graph each function
   a) \( y = \log_{0.5} x \)  
   b) \( y = \log_4 x \)

2) Solve for \( x \)
   a) \( \log_4 5 = x \)  
   b) \( 5 \cdot 2^x = 20 \)

3) Condense
   \[ 4 \log 3 + 2 \log x + \log z - \log y \]

4) Expand
   \[ \log_a (2x^3)^2 \]

5) Find the value.
   a) \( \log_4 64 \)  
   b) \( \log_2 9 \)  
   c) \( \log (1/100) \)

6) Determine the final account balance of an investment if $13000 is invested at an interest rate of 7.25% compounded continuously for 15 years.

7) Jaydon opens a savings account by depositing $3100 in an account that earns 5.6% interest compounded daily. How long will it take for the balance to be $9000?

8) $200 is invested at an annual interest rate of 4.6% compounded continuously. When will the balance be $9,700?

9) Tell whether \( y = 2 \left( \frac{1}{4} \right)^x \) represents exponential growth or decay. Then graph the exponential equation.
10) Find the exponential function with a graph that contains the point $(1, 5)$ $(2, 10)$. Then graph the exponential function.

11) A $15,000 deposit is made at a bank that pays 0.2\%$ interest compounded quarterly. How much will you have in your account at the end of 10 years?

12) You have inherited land that was purchased for $30,000$ in 1970. The value of the land increased by approximately $3.5\%$ per year. What is the approximate value of the land in the year 2016?

13) The foundation of your house has about 2,200 termites. The termites grow at a rate of about $1.4\%$ per day. How long until the number of termites doubles?