Use Functions Involving e

Ex 1: Simplify expressions with e.

A. $e^{-2} \cdot e^{11}$

B. $(2e^{-3})^{-4}$

C. $\sqrt{9e^4} \cdot 2e^{-3}$

D. $\frac{e^3}{e^{x+3}}$

Ex 2: Use a calculator to evaluate each expression. Round to the nearest thousandth.

A. $e^{-\frac{3}{4}}$

B. $5e^{7.2}$

Ex 3: Scientists used traps to study the Formosan subterranean termite population in New Orleans. The mean number y of termites collected annually can be modeled by the equation $y = 738e^{0.345t}$, where t is the number of years since 1989. What was the mean number of termites collected in 1999?

Ex 4: $$$MONEY$$$

Formulas:

A. You deposit $500 in an account earning 1.25% annual interest. Find the amount in the bank after 20 years if the money is compounded:
   - yearly
   - monthly
   - daily
   - continuously

B. Which is better? You deposit $100000 in an account:
   - 2.5% interest compounded semiannually for 100 years
   - 2.5% interest compounded continuously for 99 years

C. You have just inherited $24735.23 from a long lost relative. If the money was deposited in an account earning 1.75% annual interest, compounded continuously, and was in the account for 39 years, how much money was originally deposited?