Use Functions Involving e

of the O, I, It, e is a mathematical constant e = 2,71828 ... trational, like T., Named for Euler, 1707-1783 AKA "Napier's constant" - X Files episode "Paperclip"

(ode to access mining facility

where all our DNA is lept

Ex 1: Simplify expressions with e.

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

$$2^{-4}e^{12} = e^{12}$$

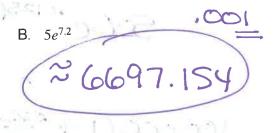
C.
$$\sqrt{9e^4 \cdot 2e^{-3}}$$

$$3e^2 \cdot 2e^{-3} = 6e^{-1} = 6e^{-1}$$

D.
$$\frac{e^3}{e^{x+3}} = e^3 - (x+3) = e^{-x} = e^{x}$$

$$OV \left(\frac{1}{e}\right)^x$$

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



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\$\$\$

A=
$$P(1+\frac{1}{n})^{n+1}$$



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: (=.0125

vearly

monthly

$$500(1+\frac{.0125}{12})^{12.20} \approx 4641.93$$

$$\frac{365.20}{500(1+\frac{0125}{365})} \approx 4642.01$$

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?

24,735.23 = Pe (075/39)