

- (11) You deposit \$500 in an account that pays 6% ANNUAL interest compounded continuously. How long before your balance doubles? (Round to nearest tenth)

$$1000 = 500(e^{.06t})$$

$$t = \frac{\ln 2}{.06}$$

$$2 = e^{.06t}$$

$$\ln 2 = .06t \ln e$$

$$\ln 2 = .06t$$

It took 11.6 years.

- (12) You deposit \$2500 in an account that pays 7.5% ANNUAL interest, compounded continuously. How long would it take for your balance to become \$3000? (Round to nearest tenth)

$$\frac{3000}{2500} = \frac{2500}{2500} e^{.075t}$$

$$t = \frac{\ln \frac{6}{5}}{.075}$$

$$\frac{6}{5} = .075t \ln e$$

$$\frac{6}{5} = .075t$$

It took 16 years.

- (13) Money was deposited 4 yrs ago in a bank account that pays 4% ANNUAL interest compounded continuously. The amount of money in the account has grown to \$2500. What was the amount of money deposited 4 yrs ago?

$$2500 = A e^{.04 \cdot 4}$$

$$\frac{2500}{e^{.16}} = A$$

\$2130.36 was deposited.

$$\frac{4}{100} \cdot \frac{4}{1} = \frac{16}{100}$$

$$= \frac{4}{25}$$