

$$15) \begin{pmatrix} 0, 230000 \\ 6, 310000 \end{pmatrix}$$

$$A = 230000e^{kt}$$

$$\frac{310000}{230000} = \frac{230000e^{6k}}{230000}$$

$$1.3478 = e^{6k}$$

$$\frac{\ln 1.3478}{6} = \frac{6k}{6}$$

$$.0497 = k$$

$$c) A = 230000e^{.0497t}$$

$$A = 230000e^{.0497 \cdot 6}$$

$$A = \$417,581$$

$$16) \begin{pmatrix} 0, 189000 \\ 14, 207000 \end{pmatrix}$$

$$a) A = 189000e^{kt}$$

$$207000 = 189000e^{k \cdot 14}$$

$$1.0952 = e^{14k}$$

$$\ln 1.0952 = 14k$$

$$k = .0065$$

$$c) A = 189000e^{.0065t}$$

$$A = 189000e^{.0065 \cdot 12}$$

$$A = \$204,332$$

Compound Interest

$$A = P \left(1 + \frac{r}{n} \right)^{nt}$$

\uparrow future values \uparrow present value

r = rate

n = # of compoundings per year

t = time in years

ex: Grandma gives you \$10000 to invest in a college savings fund. Your money earns 9% interest compounded quarterly. How much will you have in account after

18 years.

$$P = 10000$$

$$r = .09$$

$$t = 18$$

$$n = 4$$

$$A = P \left(1 + \frac{r}{n}\right)^{nt}$$

$$A = 10000 \left(1 + \frac{.09}{4}\right)^{(4 \cdot 18)}$$

$$10000 \left(1 + .09/4\right)^{(4 \cdot 18)}$$

$$A = \$49,631.66$$

ex: In 5 years you need \$8000 to buy a used car. Your money earns 6% compounded monthly. What must you invest now?

$$A = 8000$$

$$r = .06$$

$$n = 12$$

$$t = 5$$

$$8000 = P \left(1 + \frac{.06}{12}\right)^{(12 \cdot 5)}$$

$$8000 = P (1.348850153)$$

$$P = \$5,930.98$$

p324 11-16 (part a), 23-26 (part a)

annually $n=1$

semiannually $n=2$

quarterly $n=4$

monthly $n=12$

bimonthly $n=24$

biweekly $n=26$

weekly $n=52$

daily $n=365$