Part 2:

7) Find the annual rate of change in an account with an initial investment of $30 compounded **two times per year** at a rate of 2%

$A = 30\left(1+\frac{.02}{2}\right)^{2t} = 30(1.01)^{2t} = 30(1.01^2)^t = 30(1.0201)^t$

.0201 → 2.01%

8) Find the annual rate of change in an account with an initial investment of $45 compounded **monthly** at a rate of 15%

$A = 45\left(1+\frac{.15}{12}\right)^{12t} = 45(1.0125)^{12t} = 45(1.0125^{12})^t = 45(1.1608)^t$

16.08%

9) Find the annual rate of change in an account with an initial investment of $100 compounded 10% **every 6 years**.

$A = 100(1+.10)^{\frac{1}{6}t} = 100(1.10^{\frac{1}{6}})^t = 100(1.0160)^t$

1.6%

10. Lizette invests $12000 in an account that grows by 12% **every 3 years**.

a) Write a function that describes the growth of her money where t is in years.

$A = 12000(1+.12)^{\frac{1}{3}t}$

b) Find the annual rate of change on the account:

$A = 12000(1.12^{1/3})^t = 12000(1.0385)^t$

3.85%

c) Determine how long it will take for her account to reach $20000

$\frac{20000}{12000} = \frac{12000(1.0385)^t}{12000}$

$1.667 = 1.0385^t$

$\log 1.667 = \log 1.0385^t$

$\frac{\log 1.667}{\log 1.0385} = \frac{t \cdot \log 1.0385}{\log 1.0385}$

$t = 19.53$ years

d) Determine how long it will take for her account to double.

$\frac{24000}{12000} = \frac{12000(1.0385)^t}{12000}$

$2 = 1.0385^t$

$\log 2 = \log 1.0385^t$

$\frac{\log 2}{\log 1.0385} = \frac{t \cdot \log 1.0385}{\log 1.0385}$

$t = 18.35$ years