

$$40 = a$$

$$16\% = .16 r$$

$$f(x) = 320$$

$$t =$$

$$\frac{320}{40} = \frac{40}{40} (1.16)^t$$

$$8 = 1.16^t$$

$$\log_{1.16} 8 = t$$

$$\frac{\log 8}{\log 1.16} = t$$

$$1.4 = t$$

≈ 70 minutes

500mi    22% per min     $f(x) = 100$   
           .22

$$100 = 500(.78)^t$$

$$.2 = .78^t$$

$$\log_{.78} .2 = t$$

$$\frac{\log .2}{\log .78} \approx 6.5 \text{ mins}$$

10000    10% quarterly    20000

$$f(t) = a \left(1 + \frac{r}{k}\right)^{kt}$$

$$20000 = 10000 \left(1 + \frac{.10}{4}\right)^{4t}$$

$$\frac{20000}{10000} = \frac{10000}{10000} (1.025)^{4t}$$

$$2 = 1.025^{4t}$$

$$\log_{1.025} 2 = 4t$$

$$\frac{\log 2}{\log 1.025} = 4t$$

$$\approx \frac{28}{4} = 4t$$

7 years