18.

$50(1.03)^{5t} = 800$

$\frac{50(1.03)^{5t}}{50} = \frac{800}{50}$

$(1.03)^{5t} = 16$

$\ln(1.03)^{5t} = \ln 16$

$5t \ln(1.03) = \ln 16$

$t = \frac{\ln 16}{5 \ln 1.03}$

$t = 18.8$

19.

a) $A = Pe^{rt}$

$16000 = 8000e^{.025t}$

$\frac{16000}{8000} = e^{.025t}$

$2 = e^{.025t}$

$\ln 2 = \ln e^{.025t}$

$\ln 2 = .025t$

$\frac{\ln 2}{.025} = t$

$27.7 = t$

b) $3 = e^{.025t}$

$\ln 3 = \ln e^{.025t}$

$\ln 3 = .025t$

$\frac{\ln 3}{.025} = t$

$43.9 = t$