(#2) a) $F(t)$ = # of acres left after t years

$$F(t) = F_0 (1 - 10\%)^t = F_0 (0.90)^t$$

where F_0 = original # of acres

How many years for half to be destroyed?

$$F(t) = \frac{F_0}{2} \quad ; \quad t = ?$$

$$\frac{F_0}{2} = F_0 (0.90)^t$$

$$\frac{1}{2} = (0.90)^t$$

$$\ln\left(\frac{1}{2}\right) = t \ln(0.90)$$

$$\boxed{6.6 \text{ years} = t}$$

b) If rate is continuous, $F(t) = F_0 e^{rt}$

where $r = -0.10$

$$F(t) = F_0 e^{(-0.1)t}$$

$$\frac{F_0}{2} = F_0 e^{(-0.1)t}$$

$$\frac{1}{2} = e^{-0.1t}$$

$$\ln\left(\frac{1}{2}\right) = \ln e^{-0.1t}$$

$$\ln\left(\frac{1}{2}\right) = -0.1t$$

$$6.9 \text{ years} = t$$