

Problem 130

Value after 3 years of use =  $100(.5)^x$

$$M_x(t) = \frac{1}{1-2t} \quad t < \frac{1}{2}$$

$$E[100(.5)^x] = 100 \cdot E[(.5)^x]$$

$$(.5)^x = [e^{\ln(.5)}]^x$$

$$= 100 \cdot E[e^{\ln(.5) \cdot x}]$$

$$= 100 \left[ \frac{1}{1-2 \cdot \ln(.5)} \right]$$

$$= \underline{\underline{41.9}}$$

C

$$M_x(t) = E(e^{tx})$$

$$t = \ln(.5)$$