

February 26, 2007

Section 7.4

Problem #31

$f(t) = 100$ ,  $r = 8\%$

$P_V(t)$  present value of an income flow

Look on page 516,

$$\begin{aligned} P_V(\infty) &= \int_0^{\infty} f(t)e^{-rt} dt = \lim_{b \rightarrow \infty} \int_0^b 100e^{-0.08t} dt = \lim_{b \rightarrow \infty} \left[ \frac{100}{-0.08} e^{-0.08t} \right]_0^b \\ &= \lim_{b \rightarrow \infty} \left[ -1250e^{-0.08b} + 1250e^0 \right] = \lim_{b \rightarrow \infty} \left[ -\frac{1250}{e^{0.08b}} + 1250e^0 \right] = 0 + 1250 = 1250 \end{aligned}$$

$$\frac{100}{0.08} = \frac{100}{8/100} = \frac{10000}{8} = 1250$$