6.1% 9) Constant A: \$80,000 10 yrs Constant B: \$95,000 8 yr

$$B=\int_0^T R(t)e^{-kt}\,dt$$

R(t) is constant, so...

$$B=\frac{R(t)}{k}\left(1-e^{-kt}\right)$$

$$\frac{83000}{.061}\left(1-e^{-.061(10)}\right) \qquad B=\frac{95000}{.061}\left(1-e^{-.061(8)}\right)$$

\$621,342.26 \$601,337

A is the better deal

30 10) 1) $R_1(t) = 8{,}000 - 100t$ $R_2(t) = 76000 - 85t$

[illegible] years 16% interest

APV

$$B=\int_0^T R(t)e^{-kt}\,dt$$

$$=\int_0^8 (8{,}000-100t)e^{-kt}$$

$$\int 8000e^{-kt} - 100te^{-kt}$$

Integration by parts

$$\boxed{\begin{array}{ll} uv-\int v\,du & \\ u=t & v=-\frac{e^{-kt}}{k} \\ du=dt & dv=e^{-kt}dt \end{array}}$$

$$-\frac{te^{-kt}}{k}-\int -\frac{e^{-kt}}{k}\,dt$$

$$-\frac{8000e^{-kt}}{k}-100\left[-\frac{te^{-kt}}{k}-\frac{e^{-kt}}{k^2}\right]$$

$$e^{-kt}\left[\frac{-8000}{k}+\frac{100t}{k}+\frac{100}{k^2}\right]_0^8$$

$$e^{-.16(8)}\left[\frac{-8000}{.16}+\frac{100(8)}{.16}+\frac{100}{.16^2}\right]-e^0\left[\frac{-8000}{.16}+\frac{100}{.16^2}\right]$$

$\boxed{\$34{,}668}$ R_1

$$e^{.16(8)}\left[\frac{7600}{.16}+\frac{85t}{k}+\frac{85}{k^2}\right]_0^8$$

$$e^{-.16(8)}\left[\frac{-7600}{.16}+\frac{85(8)}{.16}+\frac{85}{.16^2}\right]-\left[\frac{-7600}{.16}+\frac{85}{.16^2}\right]$$

$\boxed{\$33{,}077}$ R_2

difference: \$1590