

3 Counties in FL are pooling tax revenues for bridge refurbishment.

County engineers estimated that \$500 K will be deposited at the end of next year into an account for the repair of old and safety-hazard bridges. They also estimated that the deposits will increase by \$100 K/year for 9 years, and then cease. Account earns an interest at a rate 5% / yr.

a) PV of money in the account:

$$\begin{aligned}
 PV &= 500 (PIA, 5\%, 10) + 100 (P/G, 5\%, 10) \\
 &= \frac{500}{0.05} \left(1 - \frac{1}{1.05^{10}}\right) + \frac{100}{0.05} \left(\frac{1.05^{10} - 1}{0.05 \times 1.05^{10}} - \frac{10}{1.05^{10}}\right) \\
 &= 500 * (7.721735) + 100 (31.652048) \\
 &= \$7,026.072 \text{ K}
 \end{aligned}$$

(use tables also p. 590)

uniform
b) Annual series equivalent:

$$\begin{aligned}
 A &= PV (A/P, 5\%, 10) \\
 &= 7,026.072 * \frac{1}{7.721735} = \$909.91
 \end{aligned}$$