

Problem 7-10**Goal:** Determine if Self-Insurance initial deposit

Given:	Fixed Capital	\$50,000	$I_{\text{fixed}} = \text{FCI}$
	insurance policy premium	\$500	per year
	self-insurance premium	\$400	per year
	Annuity fund interest rate	0.06	i_{nominal} Compounded Annually
	Annuity period	10	Years

Approach:

Determine future sum of self-insurance annuity and initial principle compounded

Annuity: $F_A = A [(1+i)^n - 1] / i$

Future value: $F_0 = P (1+i)^n$

Fixed Capital = \$50,000 = $F_0 + F_A = P (1+i)^n + A [(1+i)^n - 1] / i$

Calculations:

	F_A from Annuity	\$5,272	= $\$400 * (((1+0.06)^{10}) - 1) / 0.06$
solve for P in	$\$50,000 = P(1+i)^n + F_A$	\$24,976	= $(\$50,000 - \$5,272) / ((1+0.06)^{10})$

Answer**\$24,976** required initial deposit

\$19,752 Interest accrued over 10 years on P

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