Solution #64

Given

$i = .05$ $\quad q_1 = .3$

$q_0 = .1$ $\quad q_2 = .5$

Year	Bulbs
1	1000
2	2800
3	3700

Year 1

$10000 q_0 = (10000)(.1) = 1000$

Year 2

$(10000 - 1000) q_1 = (9000)(.3) = 2700$

$1000 q_0 = (1000)(.1) = 100$

$2700 + 100 = 2800$

Year 3

$(9000 - 2700) q_2 = (6300)(.5) = 3150$

$(1000 - 100) q_1 = (900)(.3) = 270$

$(2800) q_0 = (2800)(.1) = 280$

$3150 + 270 + 280 = 3700$

$$\text{Price} \cdot \sum_{t=1}^{3} \text{Bulbs}_t \cdot v^t$$

$$(1)(1000v + 2800v^2 + 3700v^3)$$

$$\approx \$6,688.26 \approx \$6,700 \quad \boxed{A}$$