

Time 10

Time 11

$$\text{Cash Inflow} = \text{Premium} = 200$$

$$\begin{aligned} \text{Cash Outflow} &= \text{Premium Expense} + \text{Policy Expense} \\ &= 0.04 \times 200 + 70 \end{aligned}$$

Fund Value at Time 10

$$= 10AS + \text{Cash Inflow} - \text{Cash Outflow}$$

$$= 1600 + 200 - (8 + 70)$$

$$= 1722$$

$$\longrightarrow 1722 \times (1 + 0.05)$$

Fund Value at Time 11 prior to any cash outflow

Time 10

Time 11

Expected Cash Outflow

Death	10,000	.02
Withdrawal	1,700	.18
Remain	11AS	1 - .02 - .18

$$1722 \times (1 + 0.05) = 10,000 \times 0.02 + 1,700 \times 0.18 + 11AS \times 0.80$$

$$\Rightarrow 11AS = 1627.63$$