

FIGURE 2.1  
Economic cash flow diagram.

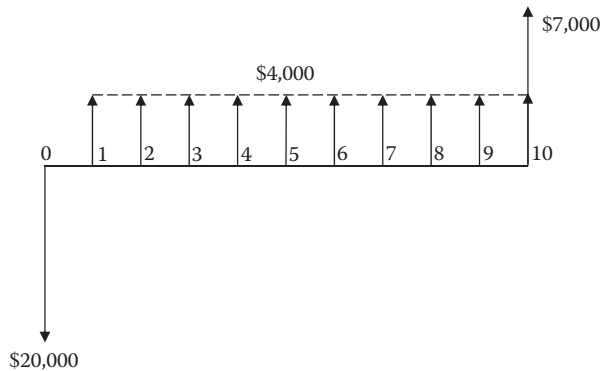


FIGURE 2.2

An equivalent version of the cash flow diagram shown in Figure 2.1.

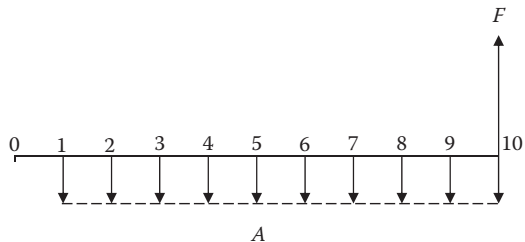


FIGURE 2.3

Cash flow diagram showing the equivalence between a uniform series,  $A$ , and a future sum,  $F$ .

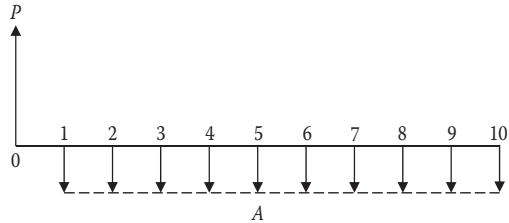


FIGURE 2.4

Cash flow diagram showing the equivalence between a uniform series,  $A$ , and a present value,  $P$ .

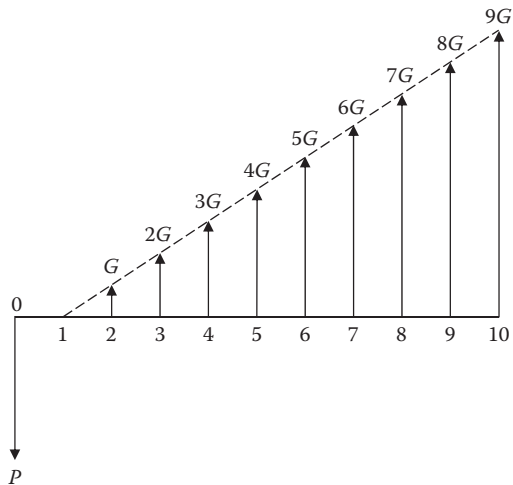


FIGURE 2.5

Cash flow diagram showing the equivalence of a uniform linearly increasing series and a present value.

Example 2.5 - Using Microsoft Excel			
<b>GIVEN:</b>	A <sub>p</sub> =	\$ 50,000.00	Annual profit increase due to equipment
	A <sub>o</sub> =	\$ 1,000.00	Annual operation cost
	S =	\$ 5,000.00	Salvage value of equipment at year n
	G =	\$ 1,000.00	Maintenance gradient
	n =	10	Number of periods in the analysis (years)
<b>FIND:</b>	i =	15.62%	Rate of return (interest rate)
			Calculated with Goal Seek
	$P + A_o \left( \frac{P}{A}, i, n \right) + G \left( \frac{P}{G}, i, n \right) = A_p \left( \frac{P}{A}, i, n \right) + S \left( \frac{P}{F}, i, n \right)$		
<b>COSTS:</b>	P =	\$ 225,000.00	Initial cost of equipment
	A <sub>o</sub> * (P/A, i, n) =	\$4,902.40	Calculated with PV function
1	G* (P/F, i, 1) =	\$0.00	Calculated with PV function
2	G* (P/F, i, 2) =	\$748.06	Calculated with PV function
3	G* (P/F, i, 3) =	\$1,293.99	Calculated with PV function
4	G* (P/F, i, 4) =	\$1,678.76	Calculated with PV function
5	G* (P/F, i, 5) =	\$1,935.96	Calculated with PV function
6	G* (P/F, i, 6) =	\$2,093.02	Calculated with PV function
7	G* (P/F, i, 7) =	\$2,172.30	Calculated with PV function
8	G* (P/F, i, 8) =	\$2,191.97	Calculated with PV function
9	G* (P/F, i, 9) =	\$2,166.67	Calculated with PV function
10	G* (P/F, i, 10) =	\$2,108.21	Calculated with PV function
	<b>PV COSTS =</b>	<b>\$ 246,291.34</b>	
<b>INCOMES:</b>	A <sub>p</sub> * (P/A, i, n) =	\$245,120.11	Calculated with PV function
	S* (P/F, i, n) =	\$1,171.23	Calculated with PV function
	<b>PV INCOMES =</b>	<b>\$246,291.34</b>	
	<b>PV(COST - INCOME) =</b>	<b>\$ (0.00)</b>	Set to zero in Goal Seek

FIGURE 2.6  
Microsoft Excel solution of Example 2.5.

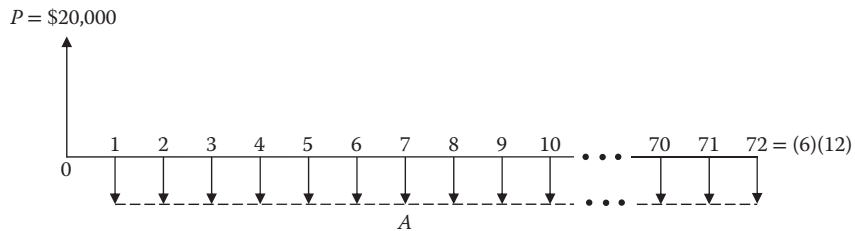


FIGURE E2.2

Courtesy of CRC Press/Taylor & Francis Group

	<b>Payment = \$308.37</b>		
<b>m</b>	<b>Interest</b>	<b>Principal</b>	<b>Balance</b>
0			\$ 20,000.00
1	\$ 58.33	\$ 250.03	\$ 19,749.97
2	\$ 57.60	\$ 250.76	\$ 19,499.20
3	\$ 56.87	\$ 251.50	\$ 19,247.71
4	\$ 56.14	\$ 252.23	\$ 18,995.48
5	\$ 55.40	\$ 252.96	\$ 18,742.51
• • •			
68	\$ 4.46	\$ 303.91	\$ 1,224.53
69	\$ 3.57	\$ 304.80	\$ 919.73
70	\$ 2.68	\$ 305.69	\$ 614.04
71	\$ 1.79	\$ 306.58	\$ 307.47
72	\$ 0.90	\$ 307.47	\$ (0.00)
	\$ 2,202.49	\$ 20,000.00	

**FIGURE E2.3**



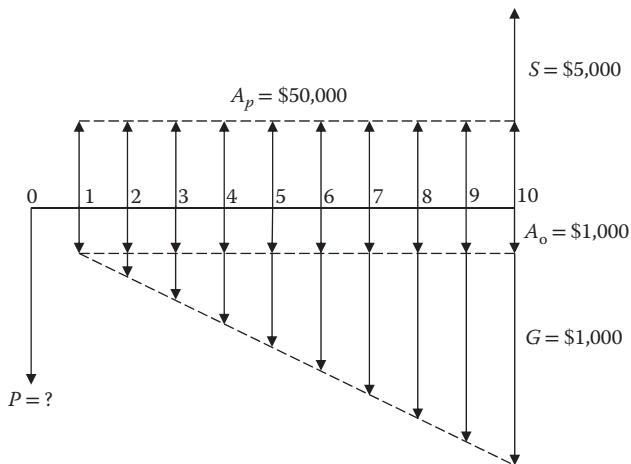
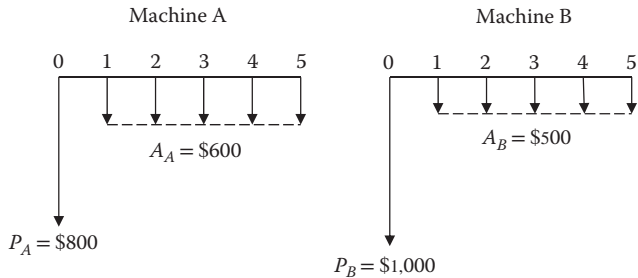


FIGURE E2.4



**FIGURE E2.6**

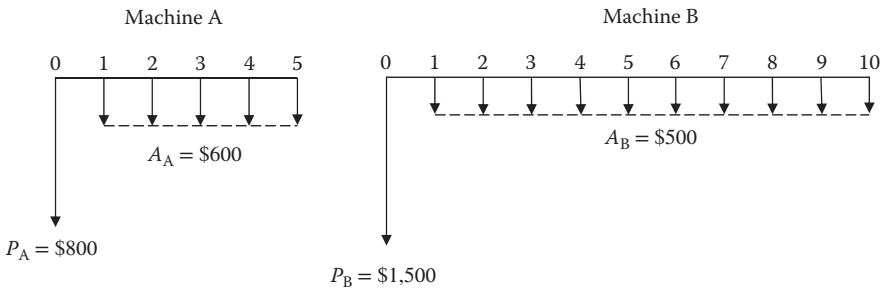
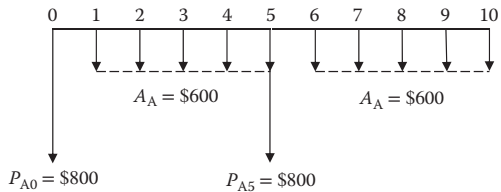
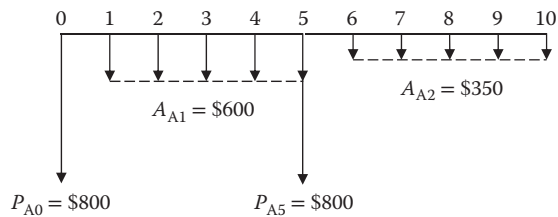


FIGURE E2.7A

Courtesy of CRC Press/Taylor & Francis Group

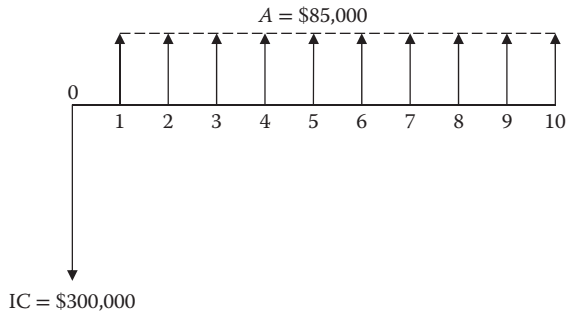


**FIGURE E2.7B**

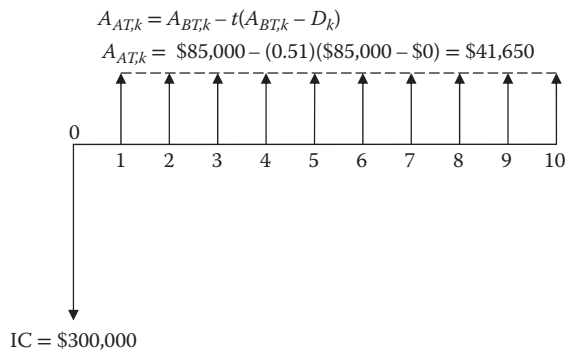


**FIGURE E2.7C**

Courtesy of CRC Press/Taylor & Francis Group

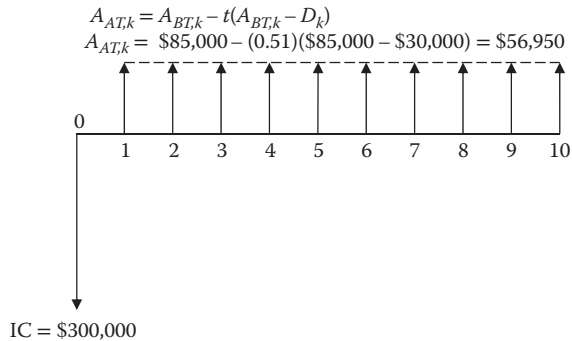


**FIGURE E2.8A**



**FIGURE E2.8B**

Courtesy of CRC Press/Taylor & Francis Group



**FIGURE E2.8C**



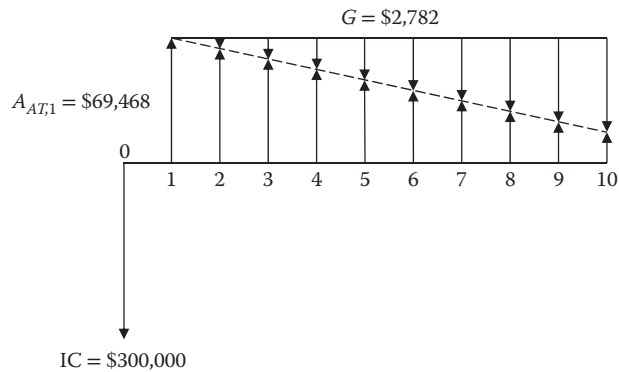
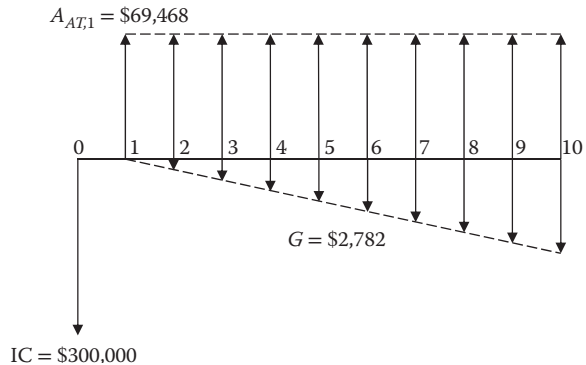


FIGURE E2.8D



**FIGURE E2.8E**

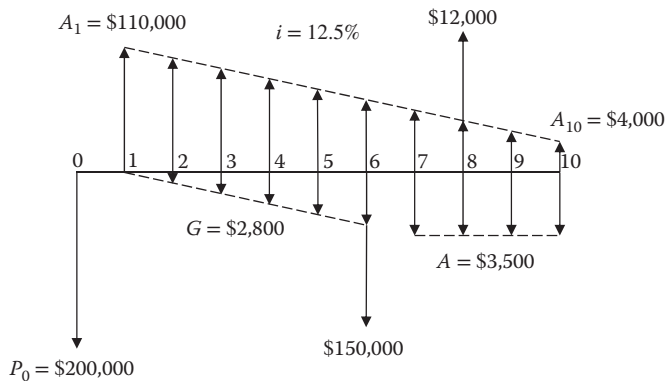


FIGURE P2.7

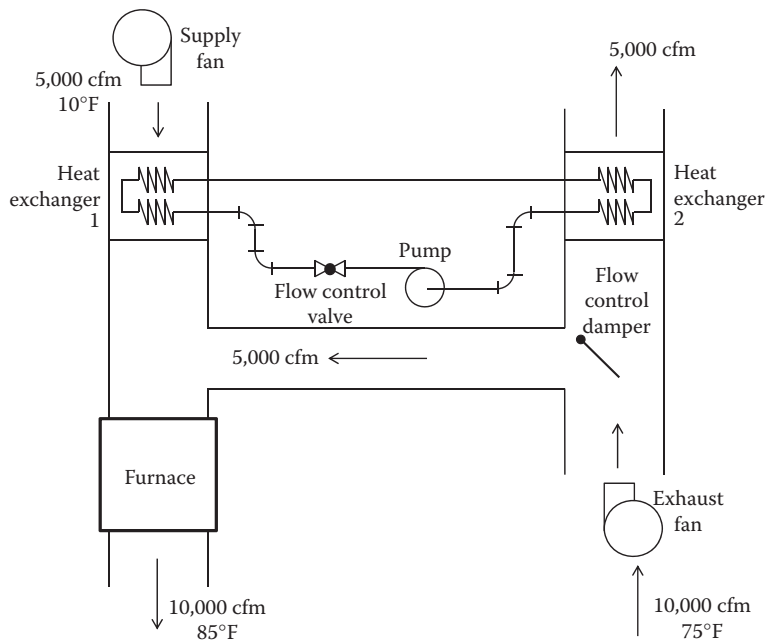


FIGURE P2.12