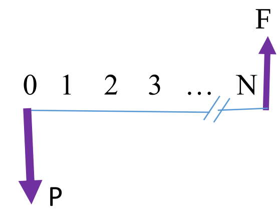
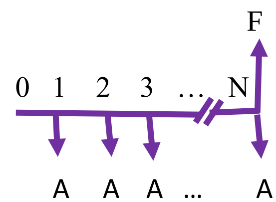
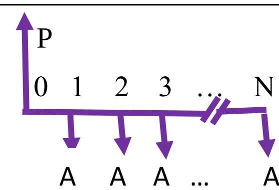
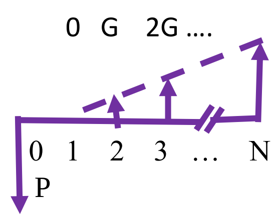
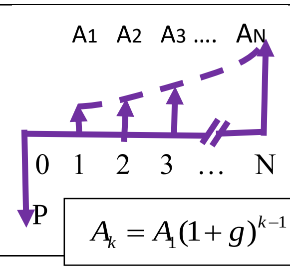
ISE307 Engineering Economic Analysis

Factor Notation	Formula	Cash Flow Diagram
$F = P\ (F/P, i, N)$	$F = P(1+i)^N$	
$P = F\ (P/F, i, N)$	$P = F(1+i)^{-N}$	
$F = A(F/A, i, N)$	$F = A\left[\frac{(1+i)^N - 1}{i}\right]$	
$A = F\ (A/F, i, N)$	$A = F\left[\frac{i}{(1+i)^N - 1}\right]$	
$P = A\ (P/A, i, N)$	$P = A\left[\frac{(1+i)^N - 1}{i(1+i)^N}\right]$	
$A = P(A/P, i, N)$	$A = P\left[\frac{i(1+i)^N}{(1+i)^N - 1}\right]$	
$P = G(P/G, i, N)$	$P = G\left[\frac{(1+i)^N - iN - 1}{i^2(1+i)^N}\right]$	
$A = G(A/G, i, N)$	$A = G\left[\frac{(1+i)^N - iN - 1}{i\left((1+i)^N - 1\right)}\right]$	
$P = A_1(P/A_1, g, i, N)$	$P = \begin{cases} A_1\left[\frac{1-(1+g)^N(1+i)^{-N}}{i-g}\right] & i \neq g \\ \frac{A_1 N}{1+i} & i = g \end{cases}$	
$i = \left(1 + \frac{r}{KC}\right)^C - 1$	$i_a = \left(1 + \frac{r}{M}\right)^M - 1$	$i = e^{r/K} - 1$
	$CPI_n = CPI_0(1 + \bar{f})^n$	$i = i' + \bar{f} + \bar{f}\, i'$

$$CR = I\,(A/P, i, N) - S(A/F, i, N) \quad = \quad (I - S)\,(A/P, i, N) + i\,S$$

MACRs Depreciation Table

year	3 200% DB	5 200% DB	7 200% DB	10 200% DB	15 150% DB	20 150% DB
1	33.33	20.00	14.29	10.00	5.00	3.75
2	44.45	32.00	24.49	18.00	9.50	7.219
3	14.81	19.20	17.49	14.40	8.55	6.677
4	7.41	11.52	12.49	11.52	7.70	6.177
5		11.52	8.93	9.22	6.93	5.713
6		5.76	8.92	7.37	6.23	5.285
7			8.93	6.55	5.90	4.888
8			4.46	6.55	5.90	4.522
9				6.56	5.91	4.462
10				6.56	5.90	4.462
11				3.26	5.91	4.461
12					5.90	4.462
13					5.91	4.461
14					5.90	4.462
15					5.91	4.461
16					2.95	4.462
17						4.461
18						4.462
20						4.461
21						2.231

US Corporate Tax Schedule

Taxable income	Tax Rate	Tax Computation
0-$50,000	15%	$0+0.15 Δ
50,001-75,000	25%	$7500+0.25 Δ
75,001--100,000	34%	$13,750+0.34 Δ
100,001-335,000	39%	$22,250+0.39 Δ
335,001-10,000,000	34%	$113,900+0.34 Δ
10,000,001-15,000,000	35%	$3,400,000+0.35 Δ
15,000,001-18,333,333	38%	$5,150,000 + 0.38 Δ
18,333,334 and up	35%	$6,416,666 + 0.35 Δ