

# FORMULAS - FINAL EXAM

**TABLE 3.2**

**Rounded Depreciation Percentages by Recovery Year Using MACRS for First Four Property Classes**

Recovery year	Percentage by recovery year <sup>a</sup>			
	3 years	5 years	7 years	10 years
1	33%	20%	14%	10%
2	45	32	25	18
3	15	19	18	14
4	7	12	12	12
5		12	9	9
6		5	9	8
7			9	7
8			4	6
9				6
10				6
11				4
Totals	<u>100%</u>	<u>100%</u>	<u>100%</u>	<u>100%</u>

<sup>a</sup>These percentages have been rounded to the nearest whole percent to simplify calculations while retaining realism. To calculate the actual depreciation for tax purposes, be sure to apply the actual unrounded percentages or directly apply double-declining balance (200%) depreciation using the half-year convention.

**TABLE 8.2**

**The Basic Format for Determining Initial Investment**

Installed cost of new asset =
Cost of new asset
+ Installation costs
- After-tax proceeds from sale of old asset =
Proceeds from sale of old asset
- Tax on sale of old asset
± Change in net working capital
Initial investment

**TABLE 8.7**

**Calculation of Operating Cash Inflows Using the Income Statement Format**

Revenue
- Expenses (excluding depreciation and interest)
Earnings before depreciation, interest, and taxes (EBDIT)
- Depreciation
Earnings before interest and taxes (EBIT)
- Taxes (rate = T)
Net operating profit after taxes [NOPAT = EBIT × (1 - T)]
+ Depreciation
Operating cash inflows (same as OCF in Equation 3.4)

Note :  $I_0$  is the same as Initial Investment (II).

NPV:  $NPV = (P.V. \text{ of Cash Inflows} - P.V. \text{ of Initial Investment})$

$$NPV = \sum_{t=1}^n \frac{CF_t}{(1+k)^t} - I_0$$

Profitability Index :

$$PI = \left( \sum_{t=1}^n \frac{CF_t}{(1+k)^t} \right) \div I_0$$

IRR:

$$I_0 = \sum_{t=1}^n \frac{CF_t}{(1+IRR)^t}$$

Payback<sub>annuity</sub> =  $I_0 / CF_t$

**TABLE 8.10**

**The Basic Format for Determining Terminal Cash Flow**

After-tax proceeds from sale of new asset =
Proceeds from sale of new asset
- Tax on sale of new asset
- After-tax proceeds from sale of old asset =
Proceeds from sale of old asset
- Tax on sale of old asset
± Change in net working capital
Terminal cash flow