1. Problem 2.13

$$V_0 = \$50 \text{ MM}$$
$$V_S = \$50 \text{ MM} \cdot \%10 = \$5 \text{ MM}$$
$$d = \frac{\$50 \text{ MM} - \$5 \text{ MM}}{10}$$
$$\boxed{d = \$4.5 \text{ MM/yr}}$$

2. Problem 2.14

(a)

$$\begin{aligned} \text{FCI} &= \$28 \text{ MM} \\ \text{salvage} &= \$3 \text{ MM} \\ N &= 10 \\ \alpha &= \frac{2}{10} = 0.2 \end{aligned}$$

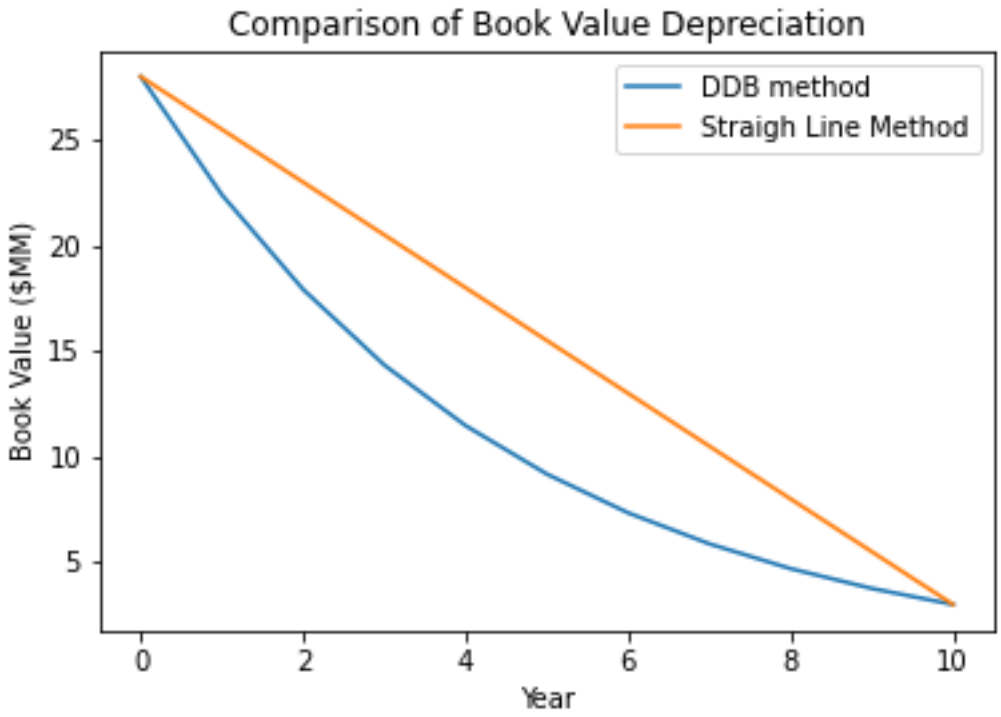
DDB method with linear adjustment in the final year:

Year	Depreciation charge ($ MM)	Book Value ($ MM)
0	0	28
1	5.6	22.4
2	4.48	17.92
3	3.58	14.33
4	2.86	11.46
5	2.29	9.17
6	1.83	7.34
7	1.46	5.87
8	1.17	4.69
9	0.93	3.75
10	0.75	3

(b) Straight line depreciation:

Year	Depreciation charge ($ MM)	Book Value ($ MM)
0	0	28
1	2.5	25.5
2	2.5	23
3	2.5	20.5
4	2.5	18
5	2.5	15.5
6	2.5	13
7	2.5	10.5
8	2.5	8
9	2.5	5.5
10	2.5	3

Comparison plot:


Comparison of Book Value Depreciation
DDB method
Straigh Line Method
Book Value ($MM)
25
20
15
10
5
0
2
4
6
8
10
Year

3. Problem 2.15

Five year MACRS depreciation:

Year	Book Value ($ MM)	Depreciation charge ($ MM)
0	100.00	0.00
1	80.00	20.00
2	48.00	32.00
3	28.80	19.20
4	17.28	11.52
5	5.76	11.52
6	0.00	5.76

Ten year MACRS depreciation:

Year	Book Value ($ MM)	Depreciation charge ($ MM)
0	100.00	0.00
1	90.00	10.00
2	72.00	18.00
3	57.60	14.40
4	46.08	11.52
5	36.86	9.21
6	29.49	7.37
7	22.93	6.55
8	16.38	6.55
9	9.83	6.55
10	3.27	6.55
11	0.00	3.27

When depreciated over five years, linear depreciation begins in the fourth year. When depreciated over ten years, linear depreciation begins in the seventh year. The unit is depreciated to zero because the MACRS method does not care about salvage value. Most of the book value is depreciated in the first few years of depreciation.

Comparison plot: