

Solutions to numerical problems from Test 3

1: $\$85=\text{PMT}$ $\$1,000=\text{FV}$ $12=\text{N}$ $\text{I/Y}=9.5\%$ **CPT PV = \\$930.16**

$$\text{CY} = \frac{\$85}{\$930.16} = 9.14\%$$

2: **First bond: $\$80=\text{PMT}$ $\$1,000=\text{FV}$ $20=\text{N}$ $-\$701.22=\text{PV}$ CPT $\text{I/Y}=12\%$**
Second bond: $12\%=\text{I/Y}$ $\$1,000=\text{FV}$ $5=\text{N}$ $-\$701.22=\text{PV}$ CPT $\text{PMT}=\$37.12$

3: $\text{D}_1=\$1.05$, $\text{D}_2=\$1.1025$, $\text{P}_2 = \frac{\$1.2128}{.12 - .10} = \60.64

Year	Cash flow
0	0
1	\$1.05
2	1.1025+60.64
	NPV I=12% ↓ CPT
	NPV=\$50.16

4: $\text{D}_1=\$1.80$, $\text{D}_2=\$2.16$, $\text{D}_3=\$2.582$, $\text{D}_4=\$3.1104$ $\text{P}_4 = \frac{\$3.1104}{.18 - 0} = \17.28

Year	Cash flow
0	0
1	\$1.80
2	2.16
3	2.592
4	3.1104 + 17.28
	NPV I=18% ↓ CPT
	NPV=\$15.17

5: $\text{k}_d: \$120=\text{PMT}$ $\$1,000=\text{FV}$ $20=\text{N}$ $-\$1,200.00=\text{PV}$ **CPT $\text{I/Y}=9.7\%$**

$$\text{WACC} = 0.25(9.7\%)(1 - 0.4) + 0.75(12.2\%) = 10.61\%$$

6: $k_s = 5\% + (9\% - 5\%)0.8 = 8.2\%$

7: $\$50=\text{PMT}$ $\$1,000=\text{FV}$ $20=\text{N}$ $4.5\%=\text{I/Y}$ **CPT PV=\$1,065.04**

8: $\text{P}_0 = \frac{\$2.30}{0.19 - 0.15} = \57.50