

Real Estate Finance
11.431/15.426J
Fall 2002

Problem Set 1
Due (end of lecture or beginning of recitation)

Please use your calculator to do all even-numbered study questions at the end of Geltner-Miller Chapter 8 EXCEPT #s 20,26,32,36. You only need to hand in the answers. Note, these problems are similar to the preceding odd-numbered questions, that are answered at the end of the book (pp.851-852). Calculator steps for solving the odd-numbered problems are attached to this assignment.

We also encourage you to get familiar with using Excel to solve these types of problems. An Excel file with formulas and functions for solving the odd-numbered Chapter 8 questions will be made available for downloading from the course web site.

The Chapter 8 PowerPoint lecture notes which should also be available for downloading from the course web site may also be helpful as a tutorial for students not familiar with solving PV math problems and the use of business calculators and computer spreadsheets for solving such problems.

Calculator steps for Chapter 8 Study Questions Answers (text pp.851-852, questions on pp.175-179)

NOTE: Not all steps need to be repeated in every problem.
 Calculator registers retain prior values until changed.

Ch.8 Practice Problem #3. Calculator steps below.

HP-10B	HP-12C	TI-BAII PLUS
CLEAR ALL	CLX	CLR_TVMT
1 P/YR	2 n	P/Y=1 ENTER QUIT
2 N	12 i	2 N
12 I/YR	15000 FV	12 I/Y
0 PMT	PV gives 11957.91	0 PMT
15000 FV		15000 FV
PV gives -11957.91		CPT PV = -11957.91

Ch.8 Practice Problem #5. Calculator steps below.

HP-10B	HP-12C	TI-BAII PLUS
CLEAR ALL	CLX	CLR_TVMT
1 P/YR	2 n	P/YR=1 ENTER QUIT
2 N	12 i	2 N
12 I/YR	20000 PV	12 I/Y
20000 PV	FV gives 25088	0 PMT
0 PMT		20000 PV
FV gives 25088		CPT FV = 25088

Ch.8 Practice Problem #7. Calculator steps below.

HP-10B	HP-12C	TI-BAII PLUS
CLEAR ALL	CLX	CLR_TVMT
12 P/YR	12 g i	P/Y=12 ENTER QUIT
12 N	12 n	12 N
12 I/YR	15000 FV	12 I/Y
0 PMT	PV gives 13311.74	0 PMT
15000 FV		15000 FV
PV gives 13311.74		CPT PV = 13311.74

Ch.8 Practice Problem #11. Calculator steps below.

HP-10B	HP-12C	TI-BAII PLUS
CLEAR ALL	CLX	I_Conv
12 P/YR	.08 ENTER	NOM = 8 ENTER ↓ ↓ CPT
8 I/YR	12 ÷	C/Y = 12 ENTER ↑
EFF% gives 8.30	1 +	CPT EFF = 8.30
	12 y ^x	
	1 - gives .0830	

Ch.8 Practice Problem #13. Calculator steps below.

HP-10B	HP-12C	TI-BAII PLUS
CLEAR ALL	CLX	I_Conv
2 P/YR	.08 ENTER	NOM = 8 ENTER ↓ ↓ CPT
8 I/YR	2 ÷	C/Y = 2 ENTER ↑
EFF% gives 8.16	1 +	CPT EFF = 8.16
	2 y ^x	
	1 - gives .0816	

Ch.8 Practice Problem #15. Calculator steps below.

HP-10B	HP-12C	TI-BAII PLUS
CLEAR ALL		
2 P/YR		
10 I/YR		
EFF% gives 10.25		
12 P/YR		
NOM% gives 9.80		

Ch.8 Practice Problem #17. Calculator steps below.

HP-10B	HP-12C	TI-BAII PLUS
CLEAR ALL		
12 P/YR		
10 I/YR		
EFF% gives 10.47		
2 P/YR		
NOM% gives 10.21		

Ch.8 Practice Problem #19. Calculator steps below.

HP-10B	HP-12C	TI-BAII PLUS
CLEAR ALL	CLX	I_Conv
999 P/YR	.08 ENTER	NOM = 8 ENTER ↓↓
8 I/YR	999 ÷	C/Y = 999 ENTER ↑
EFF% gives 8.33	1 +	CPT EFF = 8.3284
ALTERNATIVE (more acc.)	999 y^x	ALTERNATIVE (more acc.)
.08 e^x gives 1.083287	1 - gives .083287	.08 e^x gives 1.083287
- 1 = .083287 =8.33%	ALTERNATIVE (more acc.)	- 1 = .083287 =8.33%
	.08 e^x gives 1.083287	
	1 - gives .083287 =8.33%	

Ch.8 Practice Problem #21. Calculator steps below.

HP-10B	HP-12C	TI-BAII PLUS
CLEAR ALL	CLX	CLR_TVMT
1 P/YR	5 n	P/Y = 1 ENTER QUIT
5 N	15000 CHS PV	5 N
15000 +/- PV	30000 FV	15000 +/- PV
0 PMT	I gives 14.87	0 PMT
30000 FV		30000 FV
I/YR gives 14.87		CPT I/Y gives 14.87

Ch.8 Practice Problem #23. Calculator steps below.

HP-10B	HP-12C	TI-BAII PLUS
CLEAR ALL	CLX	CR_TVMT
12 P/YR	60 n	P/Y = 12 ENTER QUIT
60 N	15000 CHS PV	60 N
15000 +/- PV	30000 FV	15000 +/- PV
0 PMT	I gives 1.161944 ENTER	0 PMT
30000 FV	12 X gives 13.94	30000 FV
I/YR gives 13.94		CPT I/Y gives 13.94

Ch.8 Practice Problem #27. Calculator steps below.

HP-10B	HP-12C	TI-BAII PLUS
CLEAR ALL	CLX	CLR_TVMT
1 P/YR	10 i	P/Y = 1 ENTER QUIT
10 I/YR	15000 CHS PV	10 I/Y
15000 +/- PV	0 PMT	15000 +/- PV
0 PMT	30000 FV	0 PMT
30000 FV	n gives 8.0	30000 FV
N gives 7.27	Note: HP-12c rounds up to next whole period. Not as accurate.	CPT N gives 7.27

Ch.8 Practice Problem #29. Calculator steps below.

HP-10B	HP-12C	TI-BAII PLUS
CLEAR ALL	CLX	CLR_TVMT
12 P/YR	10 g i	P/Y = 12 ENTER QUIT
10 I/YR	15000 CHS PV	10 I/Y
15000 +/- PV	30000 FV	15000 +/- PV
0 PMT	n gives 84	0 PMT
30000 FV	12 ÷ gives 7	30000 FV
N gives 83.52	Rounds up.	CPT N gives 83.52
÷12 gives 6.96		÷12 gives 6.96

Ch.8 Practice Problem #33. Calculator steps below.

HP-10B	HP-12C	TI-BAII PLUS
CLEAR ALL	CLX	CLR_TVMT
1 P/YR	10 n	P/Y = 1 ENTER QUIT
10 N	g i	10 N
9 I/YR	15000 PMT	9 I/Y
15000 PMT	0 FV	15000 PMT
0 FV	PV gives -96264.86	0 FV
PV gives -96264.87		CPT PV gives -96264.87

Ch.8 Practice Problem #35. Calculator steps below.

HP-10B	HP-12C	TI-BAII PLUS
CLEAR ALL	CLX	CLR_TVMT
12 P/YR	.09 ENTER	P/Y = 12 ENTER QUIT
9 I/YR	12 ÷	I Conv
EFF% gives 9.38	1 +	NOM = 9 ENTER ↓ ↓
1 P/YR	12 y ^x	C/Y = 12 ENTER ↑
10 N	1 - gives .0938	CPT EFF=9.38
9.38 I/YR	9.38 i	P/Y = 1 ENTER QUIT
15000 PMT	15000 PMT	10 N
0 FV	10 n	9.38 I/Y
PV gives -94675.42	PV gives -94675.42	15000 PMT
		0 FV
		CPT PV gives -94675.42

Ch.8 Practice Problem #37. Calculator steps below.

HP-10B	HP-12C	TI-BAII PLUS
CLEAR ALL	CLX	CLR_TVMT
12 P/YR	10 g n	P/Y = 12 ENTER QUIT
120 N	9 g i	120 N
9 I/YR	1250 PMT	9 I/Y
1250 PMT	0 FV	1250 PMT
0 FV	PV gives -98677.12	0 FV
PV gives -98677.12		CPT PV gives -98677.12

Ch.8 Practice Problem #39. Calculator steps below.

HP-10B	HP-12C	TI-BAII PLUS
CLEAR ALL	CLX	CLR_TVMT
12 P/YR	10 g n	P/Y = 12 ENTER QUIT
120 N	9 g i	120 N
9 I/YR	1250 PMT	9 I/Y
1250 PMT	50000 FV	1250 PMT
50000 FV	PV gives -119073.98	50000 FV
PV gives -119073.98		CPT PV gives -119073.98

Ch.8 Practice Problem #41. Calculator steps below.

HP-10B	HP-12C	TI-BAII PLUS
CLEAR ALL	CLX	CLR_TVMT
12 P/YR	25 g n	P/Y = 12 ENTER QUIT
300 N	10 g i	300 N
10 I/YR	80000 PV	10 I/Y
80000 PV	0 FV	80000 PV
0 FV	PMT gives -726.96	0 FV
PMT gives -726.96		CPT PMT gives -726.96

Ch.8 Practice Problem #43. Calculator steps below.

HP-10B	HP-12C	TI-BAII PLUS
CLEAR ALL	CLX	CLR_TVMT
12 P/YR	10 g i	P/Y = 12 ENTER QUIT
10 I/YR	50000 PV	10 I/Y
50000 PV	500 CHS PMT	50000 PV
500 +/- PMT	0 FV	500 +/- PMT
0 FV	n gives 216	0 FV
N gives 215.9	Note: rounds up, not exact answer	CPT N gives 215.9

Ch.8 Practice Problem #45. Calculator steps below.

HP-10B	HP-12C	TI-BAII PLUS
CLEAR ALL	CLX	LCR_TVMT
12 P/YR	g BEG	P/Y = 12 ENTER QUIT
BEG/END (set to BEGIN)	5 g n	BGN SET (=BGN) QUIT
60 N	10 g i	60 N
10 I/YR	1000 PMT	10 I/Y
1000 PMT	0 FV	1000 PMT
0 FV	PV gives -47457.58	0 FV
PV gives -47457.58	g END	CPT PV gives -47457.58
BEG/END (toggle off BEG)		BGN SET (=END) QUIT

Ch.8 Practice Problem #47. Calculator steps below.

HP-10B	HP-12C	TI-BAII PLUS
CLEAR ALL		
12 P/YR		
60 N		
6 I/Y		
0 PV		
1000000 FV		
PMT gives -14332.80		

Ch.8 Practice Problem #49. Calculator steps below.

HP-10B		TI-BAII PLUS
CLEAR ALL, BEG/END=END		BGN SET (=END) ENTER QUIT
1 P/YR		P/Y = 1 ENTER QUIT
10 N		10 N
8 I/Y		8 I/Y
30 PMT		30 PMT
PV gives 201.30		CPT PV = 201.30
1.08/1.03-1=.0485X100=		1.08/1.03-1=.0485 X 100=
4.85437 I/Y		4.85437 I/Y
BEG/END = BEG		BGN SET (=BGN) ENTER QUIT
PMT gives 24.68713		CPT PMT = 24.68713
X 1.08 = 26.66		X 1.08 = 26.66
CLEAR ALL, BEG/END=END		BGN SET (=END) ENTER QUIT

Ch.8 Practice Problem #53(a). Calculator steps below.

HP-10B	HP-12C	TI-BAII PLUS
CLEAR ALL	CLX	CLR_Work
1 P/YR	180000 CHS g CF0	CF
180000 +/- CFj	15000 g CFj	CF0 = 180000 +/- ENTER ↓
15000 CFj	16000 g CFj	CF1 = 15000 ENTER ↓ ↓
16000 CFj	20000 g CFj	CF2 = 16000 ENTER ↓ ↓
20000 CFj	20000 g CFj	CF3 = 20000 ENTER ↓ ↓
22000 CFj	22000 g CFj	CF4 = 22000 ENTER ↓ ↓
17000+200000=217000 CFj	17000 ENTER 200000 +	CF5 = 17000+200000=217000 ENTER
11 I/YR	gives 217000 g CFj	NPV
NPV gives 4394	11 i	I = 11 ENTER ↓
	f NPV gives 4394	CPT NPV gives 4394

Ch.8 Practice Problem #53(b). Calculator steps below.

HP-10B	HP-12C	TI-BAII PLUS
CLEAR ALL	CLX	CLR_Work
1 P/YR	170000 CHS g CF0	CF
170000 +/- CFj	15000 g CFj	CF0 = 170000 +/- ENTER ↓
15000 CFj	16000 g CFj	CF1 = 15000 ENTER ↓ ↓
16000 CFj	20000 g CFj	CF2 = 16000 ENTER ↓ ↓
20000 CFj	20000 g CFj	CF3 = 20000 ENTER ↓ ↓
22000 CFj	22000 g CFj	CF4 = 22000 ENTER ↓ ↓
17000+200000=217000 CFj	17000 ENTER 200000 +	CF5 = 17000+200000=217000 ENTER
IRR gives 13.15%	gives 217000 g CFj	IRR CPT gives 13.15%
	IRR gives 13.15%	