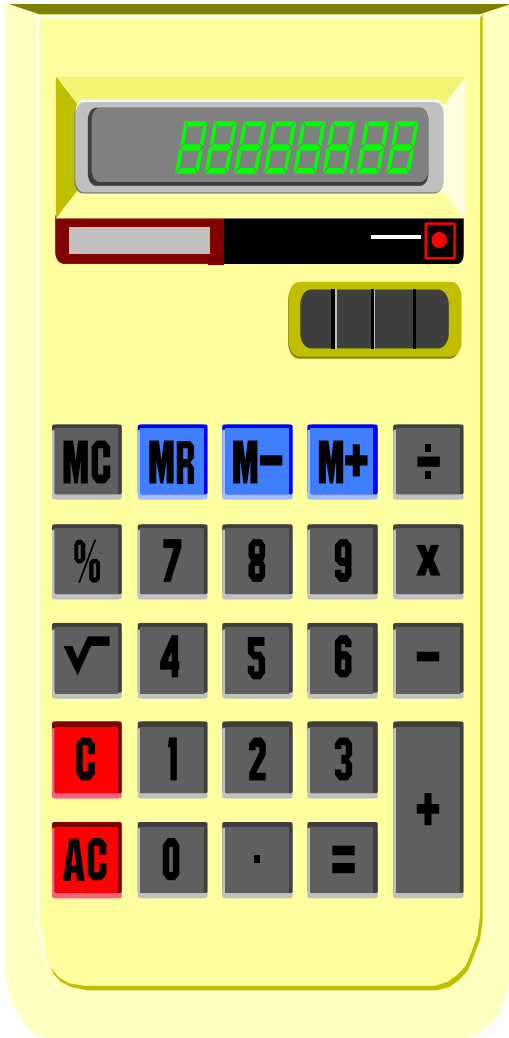


APPRAISAL INSTITUTE



FINANCIAL CALCULATOR PRACTICE EXERCISES

The attached practice exercise has been designed to assist you in preparing for Course 510. It is short and straightforward, and should not require more than 30 minutes of your time. If you have trouble remembering how to solve the problems, you will benefit from revisiting the Capitalization Theory and Techniques study guide and chapters 20 and 21 of *The Appraisal of Real Estate*, which are available from the Appraisal Institute. All of the calculator keystrokes are included in the calculator manual.

PART 1. BASIC CALCULATOR APPLICATIONS

1. **GIVEN:** V_M \$6,000,000
 Y_M 12.5%, monthly compounding
 n 30 years, monthly
 - a. What is R_M
 - b. What is the monthly payment?
 - c. What is the mortgage balance at the end of Year 7?

2. **GIVEN:** FV \$25,000
 Y_O 14%
 n 10 years
 - a. What is the sinking fund factor?
 - b. What is the annual payment necessary to accumulate the FV in 10 years?

3. **GIVEN:** I_O \$120,000 level
 Y_O 11%
 n 10 years
Reversion cost of sale 3%
 R_N 12%
 - a. What is the present value of the property?
 - b. What is the implied R_O ?

4. **GIVEN:** FV \$1,500,000 (end of year 10)
 Y_{LF} 12%
 n 10 years

Contract rent for the 10-year lease term:

Year 1	\$100,000	Year 6	\$150,000
Year 2	\$110,000	Year 7	\$155,000
Year 3	\$120,000	Year 8	\$160,000
Year 4	\$145,000	Year 9	\$160,000
Year 5	\$145,000	Year 10	\$165,000

- What is the value of the leased fee estate?
- What is the implied value of R_{LF} ?
- What is the value of the leased fee estate if payments are made in advance?

5. **GIVEN:** Same assumptions as in Problem 4, except
 Payments in arrears
 V_{LF} \$1,100,000

What is the leased fee IRR ?

PART 2. OTHER CONCEPTS

6. **GIVEN:** I_0 \$120,000 level
 Y_0 12%
 $?_0 + 20\%$
 n 10 years

Solve R_0

7. **GIVEN:** First year's I_0 \$130,000
Both income and value increasing at 3%/year
 n 5 years
 R_0 10%

Solve Y_0

8. **GIVEN:** I_0 \$100,000 level
 V_L \$350,000
L level
B -30%
 Y_0 9%
 n 10 years

Solve V_0

9. **GIVEN:** M 70%
 Y_M 11%, monthly 25 years
 DCR 1.10

Solve R_O

10. **GIVEN:** M 75%
 Y_M 12.5%, monthly 20 years
 R_E 9%

Solve R_O

11. **GIVEN:** I_O \$120,000
 R_M .1234
 V_M \$750,000
 R_E 10%

- a. Solve V_E
b. Solve V_O

ANSWER KEY

PART 1. BASIC CALCULATOR APPLICATIONS

1. a. 0.128071
 b. \$64,035.46
 c. \$5,795,395.95
2. a. 0.051714
 b. \$1,292.84
3. a. \$1,048,326
 b. 11.4%
4. a. \$1,241,330
 b. 8%
 c. \$1,332,335
5. *IRR* = 13.9%

PART 2. OTHER CONCEPTS

6. $R_O = 10.9\%$
7. $Y_O = 13\%$
8. $V_O = \$974,168$
9. $R_O = 9\%$
10. $R_O = 12.4\%$
11. a. \$274,500
 b. \$1,024,500