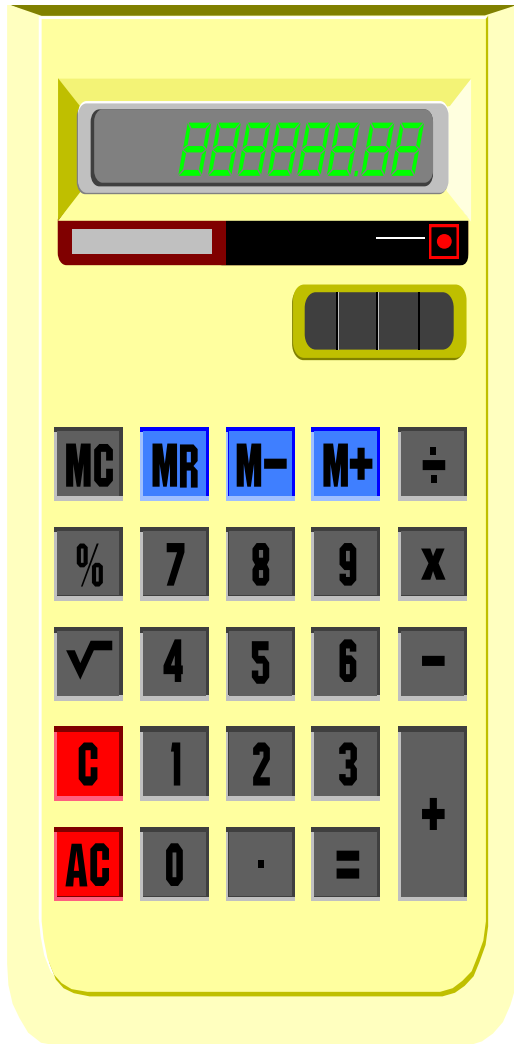


# APPRAISAL INSTITUTE

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## ***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

a. What is the value of the leased fee estate?

b. What is the implied value of  $R_{LF}$

c. 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%  
 $V_0 + 20\%$   
 $n$  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

