

8.6 a) if either can be selected, then select both because each internal rate of return is $\geq$ MARR.

b) if only one can be selected, then you would select the 23% ROR model because even though you do not know the investment amounts of either alternative, the best you can do with the first alternative is 18% because both the alternative and MARR are at 18%. With the 23% ROR alternative case your overall rate of return will be between 18% and 23%.

Chapter 8, Solution 9.

(a) Size of investment in Y = $50,000 - 20,000$
= \$30,000

(b) $30,000(i) + 20,000(0.15) = 50,000(0.40)$
 $i = 56.7\%$

Chapter 8, Solution 10.

Year	Machine A	Machine B	B – A
0	-15,000	-25,000	-10,000
1	-1,600	-400	+1200
2	-1600	-400	+1200
3	-15,000 -1600 + 3000	-400	+13,200
4	-1600	-400	+1200
5	-1600	-400	+1200
6	+3000 -1600	+6000 - 400	+4200

Chapter 8, Solution 16.

$$0 = -10,000 + 1200(P/A, i, 4) + 12,000(P/F, i, 2) + 1000(P/F, i, 4)$$

Solve for i by trial and error or Excel

$i = 30.3\%$ (Excel)

Select machine B.

8.18

YEARINC.
CASH FLOW \$ (K-J)

0

-90,000

1

16,000

2

10,000

3

10,000

4

20,000

5

20,000

6

20,000

7

20,000

8

20,000

9

20,000

10

5,000

IRR = 11%

∴ CHOOSE J

Chapter 8, Solution 29.

Rank alternatives according to increasing initial cost: 2,1,3,5,4

$$1 \text{ vs } 2: 0 = -3000(A/P, i, 5) + 1500$$

$$(A/P, i, 5) = 0.5000$$

$$i = 41.0\% \quad (\text{Excel})$$

Eliminate 2

$$3 \text{ vs } 1: 0 = -3500(A/P, i, 5) + 1000$$

$$(A/P, i, 5) = 0.2857$$

$$i = 13.2\% \quad (\text{Excel})$$

Eliminate 3

$$5 \text{ vs } 1: 0 = -10,000(A/P, i, 5) + 2500$$

$$(A/P, i, 5) = 0.2500$$

$$i = 7.9\% \quad (\text{Excel})$$

Eliminate 5

$$4 \text{ vs } 1: 0 = -17,000(A/P, i, 5) + 6000$$

$$(A/P, i, 5) = 0.3529$$

$$i = 22.5\% \quad (\text{Excel})$$

Eliminate 1

Select machine 4