

S-6.1. Rami is considering investing \$20,000 in two Lebanese treasury bills. The first treasury bill is a 1-year, zero-coupon bond with a face value of \$100, which is selling at 7.12% yield. The second is a 3-year, 5% coupon bond (paid annually) with a face value of \$100, which is selling at a 9.32% yield. In order to diversify the interest rate risk, Rami decided to invest equal amounts of money in each bond.

- (a) What are the prices of the two bonds?
- (b) How many shares of each bond should Rami buy?

S-6.2. Consider two investments with the following sequences of cash flows.

Net Cash Flow		
<i>n</i>	Project A	Project B
0	-\$30,000	-\$15,000
1	\$2,000	\$10,000
2	\$6,000	\$10,000
3	\$12,000	\$10,000
4	\$24,000	\$10,000
5	\$28,000	\$5,000

- a) Compute the ROR for each investment.
- b) Plot the present worth vs. MARR curve for each project on the same chart, and find the MARR that makes the two projects equivalent.
- c) Which project is more economically desirable at MARR of 15%?

S-6.3 Baby Doll Shop currently manufactures wooden parts for dollhouses. Its sole worker is paid \$8.10 an hour and, using a handsaw, can produce a year's required production (1,600 parts) in just eight weeks of 40 hours per week. That is, the worker averages five parts per hour when working by hand. The shop is considering the purchase of a power band saw with associated fixtures in order to improve the productivity of this operation. Three models of power saw could be purchased: Model A (economy version), Model B (high-powered version), and Model C (deluxe high-end version). The major operating difference between these models is their speed of operation. The investment costs, including the required fixtures and other operating characteristics, are summarized as follows:

Category	By Hand	Model A	Model B	Model C
Production rate (parts/hour)	5	10	15	20
Labor hours required (hours/year)	320	160	107	80
Annual labor cost (@ \$8.10/hour)	\$2,592	\$1,296	\$867	\$648
Annual power cost		\$400	\$420	\$480
Initial investment		\$4,000	\$6,000	\$7,000
Salvage value		\$400	\$600	\$700
Service life (years)		20	20	20

Assume that MARR = 10%. Are there enough potential savings to make it economical to purchase any of the power band saws? Which model is most economical according to the rate-of-return principle?