1. (Like 7.8 in the text) A firm is considering a marketing project that involves buying a software package to coordinate retail sales and inventory. The package costs $800,000 and will be depreciated down to zero using the straight-line method over three years. The salvage value is zero. Planners for the firm predict that as a result of the new software, sales revenues will be increased by $600,000 per year for the next three years, after which the market for which the software is designed will cease to exist. Cost of goods sold and operating expenses for the increased sales are 25% of the increased sales revenues. The firm needs to add net working capital of $40,000 which will be recovered in full at the end of three years. The corporate tax rate is .34 and the required rate of return is .15. Tax shields are always valuable because the firm has other sources of profit. Show that the net present value of the project is $71,43092.

2. (Like problem 8.1 in the text.) Active Radiation Inc. has designed a new drug to treat the common cold. If it markets the drug immediately there is a 60% chance of a successful launch, in which case the present value of the payoff is $1 billion, and there is a 40% chance of an unsuccessful launch yielding a present value of $100 million. Alternatively, the firm could delay the launch by one year and in that time, at a cost of $160 million, it could test market the drug and thereby improve the probability of a success to 90%. The rate of discount is twenty percent (.2). Should the firm launch immediately or spend a year (and some money) in redesigning the product? Illustrate and explain, of course.
3. (Like 8.19 of the text) A firm is marketing a video game that either will or will not find a strong market. The cost of the marketing effort is $4650 (thousand). If the game is a marketing success, the project will yield a net cash flow of $1500 (thousand) at each time 1 to 10. If the game fails, the project will yield 0 in each of the next 10 years. The discount rate is ten percent. The probability of success is .5. The managers can salvage $250 (thousand) from their marketing campaign if they abandon it at time 1, and they wonder whether this option is at all valuable. Compute the value of the option by answering the following questions.

(a) Display the base case (no option to abandon) cash flows and compute the NPV for them.

(b) Display the cash flow decision and event tree when the option is present. Compute the NPV of the project assuming that the firm will abandon or not, according to what is most valuable at time 1.

(c) Subtract (a) from (b) to find the value of the option to abandon. Explain why the option to abandon is a put option.