**FIN 440 – ASSIGNMENT 2 TOTAL POINTS – 10 MzF**

The purpose of this assignment is to test your knowledge of Microsoft Excel. We have spent a reasonable amount of time learning the basics – and now I believe that you are ready to begin the process of intuitive learning. Your assignment will be scored based on three criterion – 1. **CONCEPT** (your understanding of the problem) 2. **CONTENT** (how you will solve the problem) 3. **DESIGN** (how to layout your solutions)….*good luck!*

1. You are offered an asset costing $600 that has cash flows of $100 at the end of each of the next 10 years.

a. If the appropriate discount rate for the asset is 8%, should you purchase it?

b. What is the IRR of the asset?

2. You just took a $10,000, 5-year loan. Payments at the end of each year are flat (equal in every year) at an interest rate of 15%. Calculate the appropriate loan table, showing the breakdown in each year between principal and interest.

3. You are offered an investment with the following conditions:

• The cost of the investment is 1,000.

• The investment pays out a sum *X* at the end of the first year; this payout grows at the rate of 10% per year for 11 years.

If your discount rate is 15%, calculate the smallest *X* which would entice you to purchase the asset. For example, as you can see in the following display, *X* = $100 is too small—the NPV is negative:

|  |  |  |  |
| --- | --- | --- | --- |
|  | A | B | C |
| 1 | Discount rate | 15% |  |
| 2 | Initial payment | 129.2852 |  |
| 3 | NPV | -226.52 | <-- =B6+NPV(B1,B7:B17) |
| 4 |  |  |  |
| 5 | **Year** | **Cash flow** |  |
| 6 | 0 | -1,000.00 |  |
| 7 | 1 | 100.00 | <-- 100 |
| 8 | 2 | 110.00 | <-- =B7\*1.1 |
| 9 | 3 | 121.00 | <-- =B8\*1.1 |
| 10 | 4 | 133.10 |  |
| 11 | 5 | 146.41 |  |
| 12 | 6 | 161.05 |  |
| 13 | 7 | 177.16 |  |
| 14 | 8 | 194.87 |  |
| 15 | 9 | 214.36 |  |
| 16 | 10 | 235.79 |  |
| 17 | 11 | 259.37 |  |

4. The following cash-flow pattern has two IRRs. Use Excel to draw a graph of the **NPV** of these cash flows as a function of the discount rate. Then use the **IRR** function to identify the two IRRs. Would you invest in this project if the opportunity cost were 20%?

|  |  |  |
| --- | --- | --- |
|  | A | B |
| 4 | **Year** | **Cash flow** |
| 5 | 0 | -500 |
| 6 | 1 | 600 |
| 7 | 2 | 300 |
| 8 | 3 | 300 |
| 9 | 4 | 200 |
| 10 | 5 | -1,000 |