**Chapter 5 In Class Exercise Solution**

1. **Suppose you invest the $1,000 from the previous example for 5 years @ 5% interest rate. How much would you have at time 5?**

PV=1000, Nper=5, Rate=5%, PMT=0, FV=? FV=abs(fv(5%, 5, 0, 1000)) = 1,276.28

1. **Suppose you had a relative deposit $10 at 5.5% 200 years ago. How much will you have today?**

PV=10, Nper=200, Rate=5.5%, PMT=0, FV=? FV=abs(fv(5.5%, 200, 0, 10)) = 447,189.8

1. **Suppose you have $500 to invest and you believe that you can earn 8% per year over the next 15 years. How much would you have at the end of 15 years using compound interest?**

PV=500, Nper=15, Rate=8%, PMT=0, FV=? FV=abs(fv(8%,15, 0, 500)) = 1,586.09

1. **You want to begin saving for your daughter’s college education and you estimate that she will need $150,000 in 17 years. If you feel confident that you can earn 8% per year, how much do you need to invest today?**

FV=150000, Nper=17, Rate=8%, PMT=0, PV=? PV=abs(pv(8%, 17, 0, 150000)) = 40,540.34

1. **Your parents set up a trust fund for you 10 years ago that is now worth $19,671.51. If the fund earned 7% per year. How much is your initial investment?**

FV=19671.51, Nper=10, Rate=7%, PMT=0, PV=? PV=abs(pv(7%, 10, 0, 19671.51)) =100,000

1. **You are looking at an investment that will pay $1,200 in 5 years if you invest $1,000 today. What is the implied rate of interest?**

FV=1200, PV=1000, Nper=5, PMT=0, rate=? Rate = rate(5, 0, 1000, -1200) = 3.71% or

Rate = rate(5, 0, -1000, 1200)

1. **Suppose you are offered an investment that will allow you to double your money in 6 years. You have $10,000 to invest. What is the implied rate of interest?**

FV=20000, PV=10000, Nper=6, PMT=0, rate=? Rate = rate(6, 0, 10000, -20000) = 12.25%

Rule of 72: When calculating the doubling questions, you can use 72/# of years to estimate rate of return. In this example, 72/6=12, so the interest rate is 12% roughly.

 If interest rate is given, can use 72/(interest rate \*100) = # years.

1. **You want to purchase a new car, and you are willing to pay $20,000. If you can invest at 10% per year and you currently have $15,000, how long will it be before you have enough money to pay cash for the car?**

FV=20000, PV=15000, rate=10%, PMT=0, Nper=? Number of year = nper(10%, 0, 15000, -20000) = 3.02 years

1. **Suppose you want to buy some new furniture for your family room. You currently have $500, and the furniture you want costs $600. If you can earn 6%, how long will you have to wait if you don’t add any additional money?**

FV=600, PV=500, rate=6%, PMT=0, Nper=? Number of year = nper(6%, 0, 500, -600) = 3.13 years