

Partner #1: \_\_\_\_\_ Partner #2: \_\_\_\_\_

## *Millionaire*

### **Instructions:**

You will be using the spreadsheet provided to complete this activity.

*It is important that you only make changes to the "annual investment" and "annual interest rate".*

### **Getting Familiar with the spreadsheet.**

1. If someone invests \$200 a year at an annual interest rate of 8%, how much will they have after 10 years? \_\_\_\_\_ After 20 years? \_\_\_\_\_
  
2. a) If Charles is 35 right now and he invests \$500 a year at 10% interest, how much will he have when he is 60? \_\_\_\_\_ (Hint: how many years have gone by?)  
b) If Charles is 20 right now and he invests \$500 a year at 10% interest, how much will he have when he is 60? \_\_\_\_\_ (Hint: how many years have gone by?)  
c) How much more money did his investment accumulate because Charlie began his investment at age 20 instead of age 35?
  
3. a) How much would you have to invest each year at 9% if you wanted to have \$500 000 in 30 years? \_\_\_\_\_ (Hint: do trial and error with the "annual investment" amount)  
b) How much would you have to invest each year at 9% if you wanted to have \$1 000 000 in 30 years? \_\_\_\_\_ (Hint: do trial and error with the "annual investment" amount)
  
4. a) What interest rate would you need to earn if you were investing \$500 a year and wanted to reach \$150 000 in 25 years? \_\_\_\_\_ (Hint: do trial and error with the "annual interest rate" amount)  
b) What interest rate would you need to earn if you were investing \$1 000 a year and wanted to reach \$150 000 in 25 years? \_\_\_\_\_ (Hint: do trial and error with the "annual interest rate" amount)

5. Suppose you earn 8% each year on your investments. Find out how much would you need to deposit each year to earn \$1 000 000 by the time you are 60: (Hint: trial and error with the "annual investment" amount")

Age	20	30	40	50
Number of years until 65	40	30	20	10
Amount deposited each year				
Total amount you deposit until 65.				
Total amount available at age 65. (total of deposits and interest)				
Interest earned over length of investment				

6. a) If you invest \$1.00/day starting on your 20<sup>th</sup> birthday and continue until your 30<sup>th</sup> birthday how much will you have? (Assume on average a 7% return each year).\_\_\_\_\_ (Hint: Calculate your annual (yearly) investment first!)
- b) Now, suppose you keep this money in your account without investing anything more after age 30. How much will your investment have grown to by the time you retire on your 60<sup>th</sup> birthday? Your interest rate is still 7% compounded quarterly.

$$A = ?$$

$$A = P(1+i)^n$$

P = See answer from part (a)

i = interest rate as a decimal ÷ # compounds per year

n = # years x # compounds per year

7. After completing the assignment, give some financial advice to a friend who is turning 20. Include information about:
- how they should invest to become a millionaire by the time they retire
  - how this plan will vary if they start now as opposed to later