Introduction to Spreadsheets and Simple Interest

1. Getting started with spreadsheets.

   (a) Rectangles in spreadsheets are called *cells* and they are identified by their row (numbers) and column (letters) . The upper left rectangle is `A1`.

   (b) To calculate something, click in a cell and start the calculation with `=`. For example, to add 3+4, click in a cell and type `=3+4` and then hit return. To multiply, you must type `*`.

2. Some starting examples: compute the following

   (a) To add $3 + 4$, enter `=3+4`

   (b) To subtract 100-76, enter `=100-76`

   (c) To multiply 4 times 18, enter `=4*18`

   (d) To divide 0.05 by 12, enter `=0.05/12`

   (e) To calculate , enter `=5^25`

3. Use a spreadsheet to compute an 18% tip on a $35.75 bill.

   (a) What is 18% as a decimal? _____

   (b) What should we enter into the spreadsheet? _____

4. Suppose we wanted to be able to make a tip calculator, where you could enter the bill, and enter a tip percent, and have it automatically compute the additional tip and the total. We will use *cell references*.

   (a) In cell `A1`, type `Bill Amount`

   (b) In cell `B1`, type `Tip Total`

   (c) In cell `C1`, type `Bill Total`

   (d) In cell `A2`, type `35.75`

   (e) In cell `B2`, type `=0.18*A2`, (or type `=0.18*` and then click on cell `A2`)

   (f) In cell `C2`, type `=A2 + B2` (or click on the corresponding cells)

C2	▼	fx =B2+A2	
	A	B	C
1	Bill Amount	Tip Total	Bill Total
2	35.75	6.435	42.185

What happens if you change the bill amount? _____

What would you need to change if you wanted to give a 20% tip? _____

5. We can use *Fill Down* to quickly recalculate changes in values.

   (a) Change the value in cell A2 to 10.

   (b) In cell A3 enter 20.

   (c) Select both cells and drag down until you get to 110.

   (d) Drag down the values in cells B2 and C2.

   (e) How much is the tip on a $110 meal? _____

   How much is the final bill? _____

6. Simple Interest

   (a) **Definition:** Interest is only earned (or paid) on the original amount. (Imagine you take the interest each year and just put it in your wallet.)

   (b) **Example:** You invest $500 and you earn 6% interest every year for 5 years (only on the original $500).

   Calculating simple interest with a spreadsheet:

      i. Make a new sheet in your spreadsheet, called Interest.

      ii. In A1 type Simple Interest

      iii. In A2 Year. Type in 1 and 2 and fill down to get to year 5.

      iv. In B2 type principal (principal = starting amount of money).

      v. In C2 type interest

      vi. In C1 type 0.06 (this is where we are strong our interest)

      vii. Type 500 into B3

      viii. Type =$B$3*$C$1 into C3. The $ fix the row and column references.

      ix. Fill down C3 until year 5

      x. In A8 type total

      xi. In C8 type =sum(C3:C7) (or type =sum(and then click on cell C3 and drag down to C7)

      xii. In A9 type grand total and then in B9 type =B3+C8

   (c) How much interest was earned each year? _____

   (d) How much interest was earned in total? _____

   (e) How much money did you have at the end of 5 years? _____

   (f) What happens if you change the interest rate? What if you change the principal? Experiment. (Then change back to principal = $500 and interest = 6%)

7. Compound Interest

    (a) **Definition:** Interest is earned at a certain rate and then reinvested with the principal

    (b) **Example:** You invest \$500 and you earn 6% interest, compounded every year for 5 years.

        Calculating compound interest with a spreadsheet:

          i. Copy the simple interest calculation starting in column `E1`. We will modify to compute compound interest:

          ii. In `E1` type `Compound Interest`

          iii. Type `=$F$3*$G$1` into `C3`. The `$` fix the row and column references.

          iv. Type `=F3+G3` into `F4`. What are we doing? _____

          v. Type `=F4*$G$1` into `G4`

          vi. Click on both cells `F4` and `G4` and fill them both down simultaneously.

          vii. In `F8` type `total`

          viii. In `G8` type `=sum(G3:G7)` (or click and drag)

          ix. In `E9` type `grand total` and then in `F9` type `=F3+G8`

    (c) How much interest was earned in total? _____

    (d) How much money did you have at the end of 5 years? _____

    (e) Use a spreadsheet to calculate how much more interest was earned through compound interest vs simple interest. _____