Getting started with spreadsheets.

1. Basic Computation
   (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`
2. Compute an 18% tip on a $35.75 bill.
   (a) What is 18% as a decimal? 0.18
   (b) What should we enter into the spreadsheet? (35.75)(0.18) = $6.44
3. Make a tip calculator using **cell references**.
   (a) Open a new spreadsheet and label it `TIP`.
   (b) In cells A1, B1, C1, D1, type column headers:

Bill Amount	Tip Percent	Tip Paid	Total

   (c) In cells A2, B2, C2, D2, type:

$= 35.75$	$= 0.18$	$= A2 * B2$	$= A2 + C2$

   (d) What calculation did we do?
   The tip and total paid for $35.75 bill and 18% tip.
   (e) Use the calculator to determine the Total if the Bill Amount is $76.80 and the Tip Percent is 20%.
   Replace A2 with 76.80 and B2 with 0.2
4. We now demonstrate the **Fill Down** feature.
   (a) Enter 10 into call `A2` and enter `A2+10` into cell `A3`
   (b) Select `A3` and drag down until you get to 110.
   (c) Drag down cells `B2` through `D2`.
   (d) How much is the tip on a $110 meal? $22.00
   How much is the final bill? $132.00
   How large does the Bill Amount need to be for the tip to be more than $15? $80.00

5. Make a Simple Interest Calculator

Suppose \$1000 is invested in a savings account that earns 3.2% interest on the \$1000 each year.

(a) Open a new spreadsheet called `Interest`.

(b) In cells A1, B1, C1, D1, E1 type column headers:

Interest Rate	Principal	Year	Interest	Total

(c) Determine what should be in cells A2, B2, C2, D2, E2:

=0.032	=\$1000	Start	none	

(d) Determine what should be in cells A3, B3, C3, D3, E3:

=0.032	=\$1000	= 1	=A3*B3	=B3+D3

(e) Determine what should be in cells A4, B4, C4, D4, E4:

=0.032	=\$1000	=C3+1	=A4*B4	=E3+D4

(f) Use the pull down feature to determine the Total in the savings account in 10 years. Write down your steps.

- highlight row 4. Pull down to row 12.
- read off E12
- Ans: \$1320.00

(g) How long will it take for the savings account to double in value? Write down your steps.

- Pull down many rows.
- In row 33, the total is \$1992. In row 34, the total is \$2024.00
- So it takes 32 years.

(h) How can you calculate the Total in the savings account in 50 years **without** using the pull down feature? Then check your calculation using the pull down feature.

Each year, the account gains \$32.00. So, in 50 years, the account gains (50)(\$32) = \$1600. So the total is \$1000 + \$1600 = \$2600. (Look in row 52 ✓)

(i) If P is the principal, r is the interest rate, t is the number of years, and A is the accumulated amount of money in the savings account, write a formula for A and check your answer.

$$A = P + P \cdot r \cdot t = P(1 + rt) = P + I$$

P: principal; P·r: interest each year; t: number of years; P: principal; I: interest

6. How To Export the **entire workbook** as a **PDF**.
   (a) Save your work!
   (b) In upper left menu, click `File` to produce a dropdown menu.
   (c) In dropdown menu, select `Download`
   (d) In right-side menu, select `PDF`

7. Quick Summary of Finance Terms
   (a) **principal** - P - starting amount of money, present value

   (b) **interest rate** - r - a percent
   - the percent of principal gained in a given time period

   (c) **interest** - I - the amount of money added each time period

   (d) **accumulated amount** or **end amount** or **principal plus interest** or **future value**

   $A = P + I$ = the starting amount and the money added.

   (e) **Formula for Simple Interest over Time**

   $$A = P(1 + rt) = P + Prt$$

   (f) Comment on time t.

   In this example, interest was added each year.
   But this can vary, say each month, or each quarter.

Introduction
7
24
72
0.004166666667
2.98023E+17
6.435

Bill Amount	Tip Percent	Tip Paid	Total
$35.75	0.18	$6.44	$42.19
Bill Amount	Tip Percent	Tip Paid	Total
$35.75	0.2	$7.15	$42.90
Bill Amount	Tip Percent	Tip Paid	Total
$10.00	0.2	$2.00	$12.00
$20.00	0.2	$4.00	$24.00
$30.00	0.2	$6.00	$36.00
$40.00	0.2	$8.00	$48.00
$50.00	0.2	$10.00	$60.00
$60.00	0.2	$12.00	$72.00
$70.00	0.2	$14.00	$84.00
$80.00	0.2	$16.00	$96.00
$90.00	0.2	$18.00	$108.00
$100.00	0.2	$20.00	$120.00
$110.00	0.2	$22.00	$132.00

Interest Rate	Principal	Year	Interest	End of Year Total		Notes
0.032	$1,000.00	start	none			
0.032	$1,000.00	1	$32.00	$1,032.00		
0.032	$1,000.00	2	$32.00	$1,064.00		
0.032	$1,000.00	3	$32.00	$1,096.00		
0.032	$1,000.00	4	$32.00	$1,128.00		
0.032	$1,000.00	5	$32.00	$1,160.00		
0.032	$1,000.00	6	$32.00	$1,192.00		
0.032	$1,000.00	7	$32.00	$1,224.00		
0.032	$1,000.00	8	$32.00	$1,256.00		
0.032	$1,000.00	9	$32.00	$1,288.00		
0.032	$1,000.00	10	$32.00	$1,320.00		at 10 years
0.032	$1,000.00	11	$32.00	$1,352.00		
0.032	$1,000.00	12	$32.00	$1,384.00		
0.032	$1,000.00	13	$32.00	$1,416.00		
0.032	$1,000.00	14	$32.00	$1,448.00		
0.032	$1,000.00	15	$32.00	$1,480.00		
0.032	$1,000.00	16	$32.00	$1,512.00		
0.032	$1,000.00	17	$32.00	$1,544.00		
0.032	$1,000.00	18	$32.00	$1,576.00		
0.032	$1,000.00	19	$32.00	$1,608.00		
0.032	$1,000.00	20	$32.00	$1,640.00		
0.032	$1,000.00	21	$32.00	$1,672.00		
0.032	$1,000.00	22	$32.00	$1,704.00		
0.032	$1,000.00	23	$32.00	$1,736.00		
0.032	$1,000.00	24	$32.00	$1,768.00		
0.032	$1,000.00	25	$32.00	$1,800.00		
0.032	$1,000.00	26	$32.00	$1,832.00		
0.032	$1,000.00	27	$32.00	$1,864.00		
0.032	$1,000.00	28	$32.00	$1,896.00		
0.032	$1,000.00	29	$32.00	$1,928.00		

0.032	$1,000.00	30	$32.00	$1,960.00		
0.032	$1,000.00	31	$32.00	$1,992.00		
0.032	$1,000.00	32	$32.00	$2,024.00		when it doubles
0.032	$1,000.00	33	$32.00	$2,056.00		
0.032	$1,000.00	34	$32.00	$2,088.00		
0.032	$1,000.00	35	$32.00	$2,120.00		
0.032	$1,000.00	36	$32.00	$2,152.00		
0.032	$1,000.00	37	$32.00	$2,184.00		
0.032	$1,000.00	38	$32.00	$2,216.00		
0.032	$1,000.00	39	$32.00	$2,248.00		
0.032	$1,000.00	40	$32.00	$2,280.00		
0.032	$1,000.00	41	$32.00	$2,312.00		
0.032	$1,000.00	42	$32.00	$2,344.00		
0.032	$1,000.00	43	$32.00	$2,376.00		
0.032	$1,000.00	44	$32.00	$2,408.00		
0.032	$1,000.00	45	$32.00	$2,440.00		
0.032	$1,000.00	46	$32.00	$2,472.00		
0.032	$1,000.00	47	$32.00	$2,504.00		
0.032	$1,000.00	48	$32.00	$2,536.00		
0.032	$1,000.00	49	$32.00	$2,568.00		
0.032	$1,000.00	50	$32.00	$2,600.00		at 50 years
0.032	$1,000.00	51	$32.00	$2,632.00		
0.032	$1,000.00	52	$32.00	$2,664.00		
0.032	$1,000.00	53	$32.00	$2,696.00		
0.032	$1,000.00	54	$32.00	$2,728.00		
0.032	$1,000.00	55	$32.00	$2,760.00		
0.032	$1,000.00	56	$32.00	$2,792.00		
0.032	$1,000.00	57	$32.00	$2,824.00		
0.032	$1,000.00	58	$32.00	$2,856.00		
0.032	$1,000.00	59	$32.00	$2,888.00		
0.032	$1,000.00	60	$32.00	$2,920.00		