Name: _____ Date: _____

TM 3–3

How to Do Page 168 Example 2a) Using Microsoft® *Excel*

Use Microsoft® *Excel* to graph function $h(t) = -490t^2 + 150t + 25$.

1. Open Microsoft® *Excel* spreadsheet software on your computer.
   • To save your file, click on File, then Save As.

2. Enter the titles of the columns.
   • Click on cell A1 enter **Time (s)**.
   • Click on cell B1 enter **Height (cm)**.

3. In the first column, enter values of *t* from 0 to 0.45
   • Type **0** into cell A2.
   • To create a formula that you can copy into the boxes below, click on cell A3 and type = **A2 + 0.05**
   • To copy this formula to the cells below, left click (and hold down) on cell A3. Drag the cursor so cells A3 to A11 are highlighted. Then, hold down the Ctrl key while typing **d**. (This is equivalent to choosing Edit → Fill → Down.)
   • The *time* column should now contain the numbers 0 to 0.45.
   • You may wish to format all numbers to be two decimal places. Highlight cells A2 to A11 and choose Format, cells, and then number. Set the number of decimal places to 2. See Figure 1.

Figure 1

4. Complete the column for height.
   • Click on cell B2 and enter the formula = **−490*A2^2 + 150*A2 + 25**
   • To copy this formula, left click (and hold down) on cell B2. Drag the cursor so cells B2 to B11 are highlighted and then hold down the Ctrl key while typing **d**.
   • You may wish to format all numbers to be three decimal places. Refer to step 3. The table is shown in Figure 2.
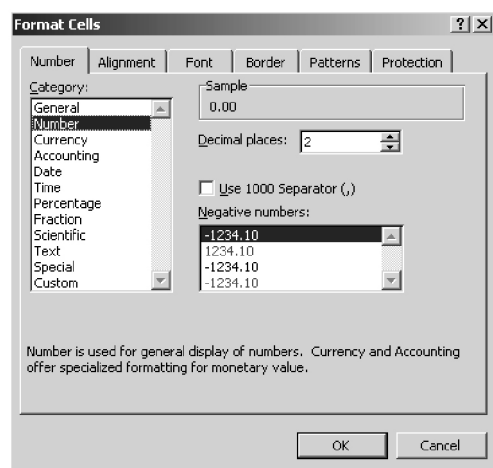
	A	B	C
1	Time (s)	Height (cm)	
2	0.00	25.000	
3	0.05	31.275	
4	0.10	35.100	
5	0.15	36.475	
6	0.20	35.400	
7	0.25	31.875	
8	0.30	25.900	
9	0.35	17.475	
10	0.40	6.600	
11	0.45	-6.725	
12			

Figure 2

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5. Create a scatterplot
  • Under the Insert menu, select chart. This will open the chart wizard.
  • Select XY (Scatter) as the type of chart you wish to insert.
  • Under Chart sub-type, select Scatter with data points connected by smoothed lines. (The icon is on the left in the middle row.)
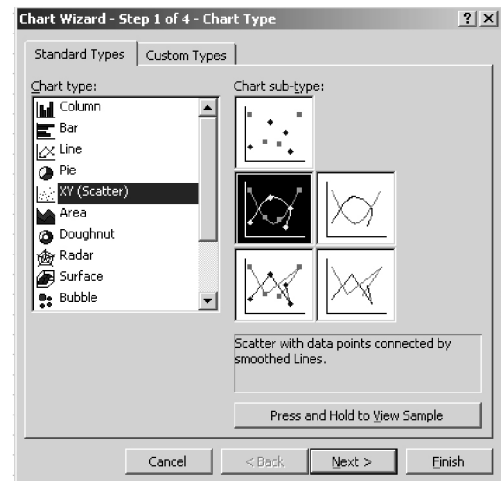 • Click on Next >. See Figure 3.

Figure 3

6. Enter the data range.
  • In the main body of the spreadsheet, click on cell A2.
  • Hold and drag the cursor to B11. This will create a flashing rectangle around all cells that have data in them.
  • Click Next >.

7. Name the chart and provide labels for the *x*-axis and *y*-axis.
  • You may wish to enter **Height of Frog Over Time** for the chart title, **Time (seconds)** for Value (X) axis, and **Height (cm)** for the Value (Y) axis. See Figure 4.
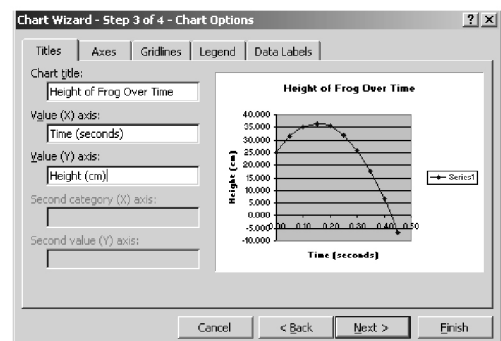 • Click Next >.

Figure 4

8. Place the chart.
  • Select As object in Sheet 1. See Figure 5.
  • Press Finish and your chart will be placed in the spreadsheet. See Figure 6.

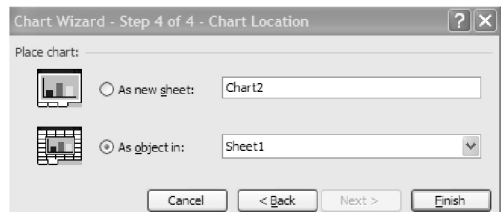

Figure 5

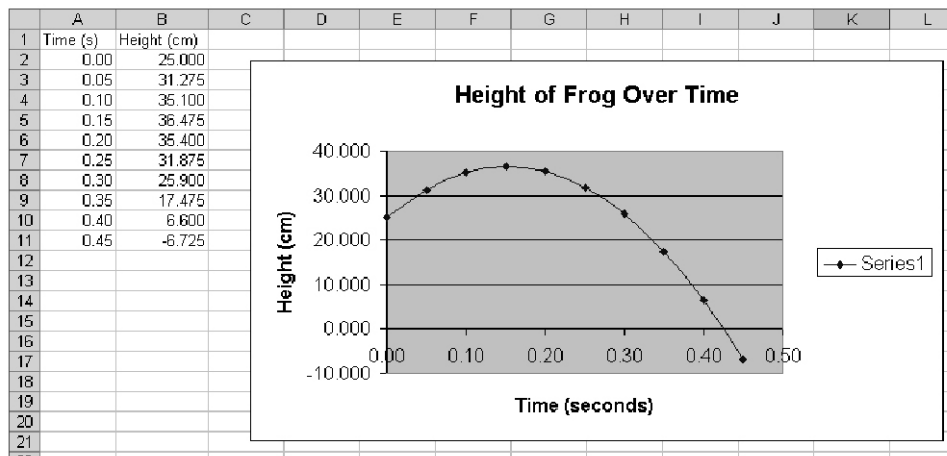|	A	B
1	Time (s)	Height (cm)
2	0.00	25.000
3	0.05	31.275
4	0.10	35.100
5	0.15	36.475
6	0.20	35.400
7	0.25	31.875
8	0.30	25.900
9	0.35	17.475
10	0.40	6.600
11	0.45	-6.725

Height of Frog Over Time

Figure 6

- You may wish to move the graph to a convenient location and change its size.
- Save your file before exiting.