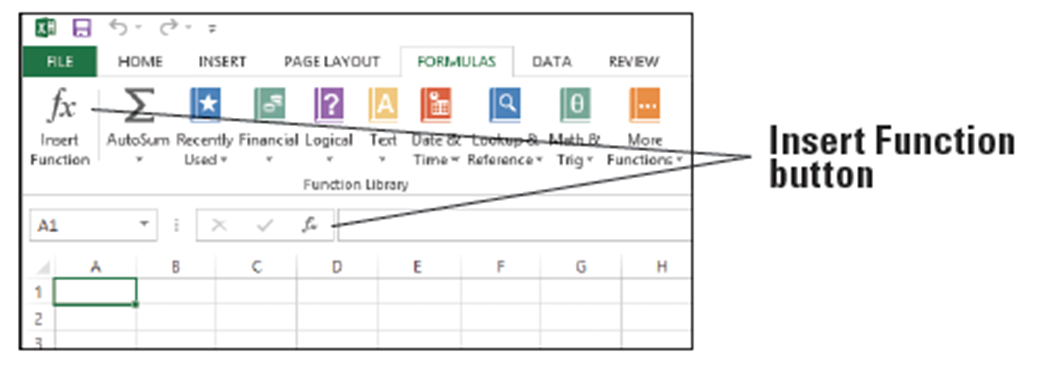
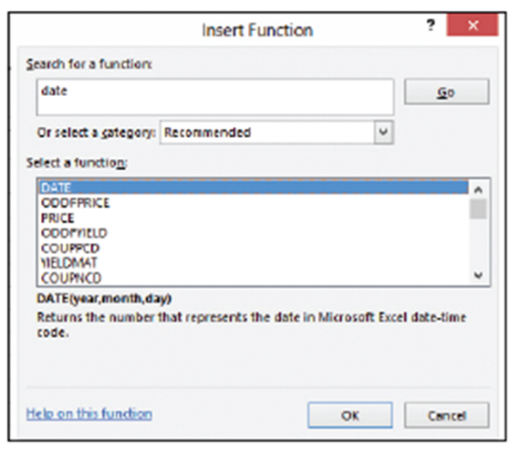
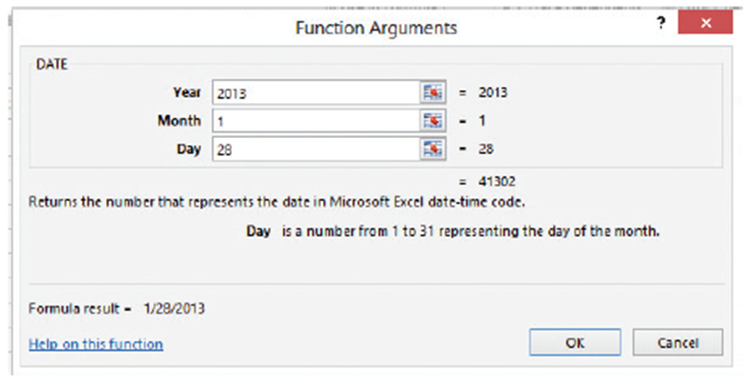
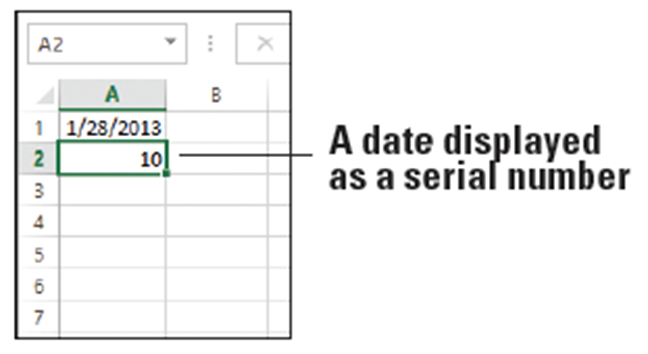
Step by Step 1: Explore Functions

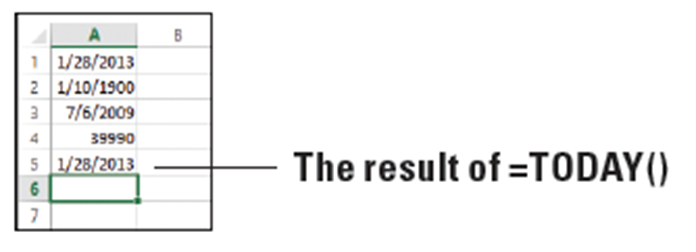
* **GET READY. LAUNCH** Excel and open a new, blank workbook.
  1. To become familiar with the tools   
     available to build formulas and insert   
     functions, click the **FORMULAS** tab.   
     Excel arranges functions by category   
     in the Function Library group, such as   
     Financial, Logical, Text, and so on.   
     Click the **Financial** button arrow to   
     display a drop-down list of functions   
     (right). If you create a financial function,   
     you can simply scroll through the list   
     and select the function you want.
  2. You can also find a function using the Insert Function dialog box. On the FORMULAS tab or on the formula bar, click the **Insert Function** button. The buttons are shown below.
  3. In the Insert Function dialog box, type a description of what you want to do. For   
     example, type **date** and click **Go**. Excel returns a list of functions that most   
     closely match your description (right).
  4. With DATE selected in the   
     Select a function list, click **OK**. The Function Arguments dialog box opens.
  5. Enter the current year, the number of the current month, and the number of the current day (below). Click **OK**. The date is entered into the worksheet in cell A1.
  6. **SAVE** the workbook as ***05 Practice***.
* **PAUSE.** Leave the workbook open to use in the next exercise.

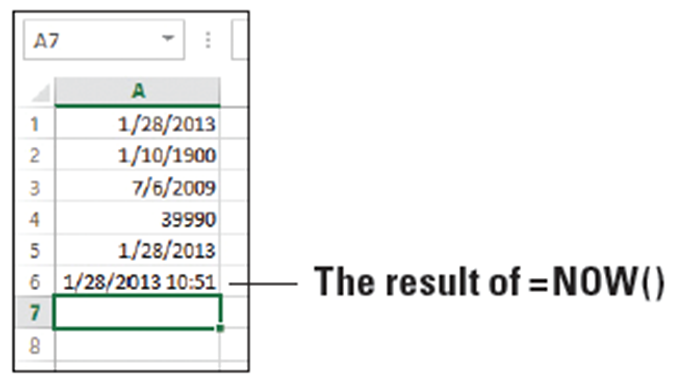
Step by Step 2: Explore Dates

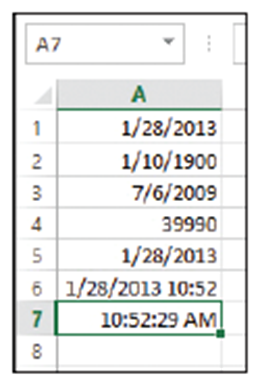
* **GET READY. USE** the workbook you created in the previous exercise.
  1. In cell A2, type **1/10/1900** and press **Enter**.
  2. Select cell **A2**.
  3. On the HOME tab, in the   
     Number group, open the   
     **Number Format** menu   
     and select **General**. The   
     value in A2 changes to *10*   
     (right). When you enter a   
     date manually into Excel, the format of the cell automatically changes to Date. Because the date 1/10/1900 is the tenth day after (and including) January 1, 1900, the value is *10*. Excel’s Date format displays the value as a date, and the General format displays the value as a number.
  4. With A2 still selected, change the number format to **Short Date** using the Number Format menu. The cell displays *1/10/1900*.
  5. In cell A3, type **40000** and press **Enter**. Because the cell is formatted as General, the value appears as a number.
  6. Click cell **A2**.
  7. On the HOME tab, in the Clipboard group, click the **Format Painter**, and then click cell **A3**. The formatting of A2 is copied to A3. The value in A3 now appears as a date: *7/6/2009*.
  8. In cell A4, type **=A3-A2** and press **Enter**. The result is *39990*, which is the number of days between the two dates.
  9. **SAVE** the workbook.
* **PAUSE.** Leave the workbook open to use in the next exercise.

Step by Step 3: Use the TODAY Function

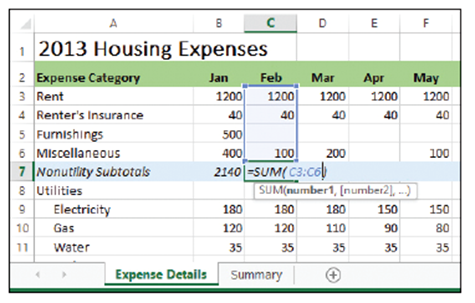
* **GET READY. USE** the workbook you modified in the previous exercise.
  1. In cell A5, type **=TODAY()** and press **Enter**. The current date displays (below).
  2. **SAVE** the workbook.
* **PAUSE.** Leave the workbook open to use in the next exercise.



Step by Step 4: Use the NOW Function

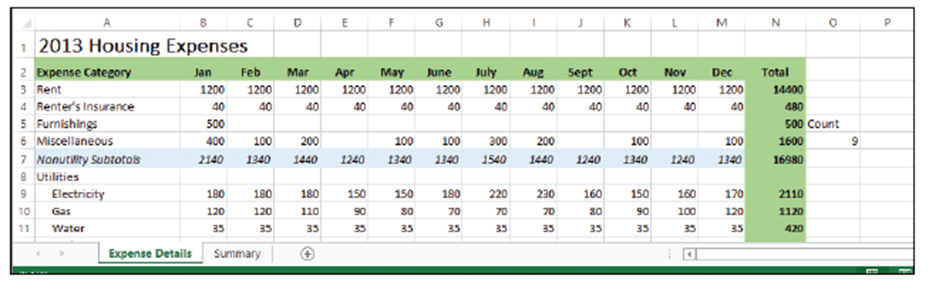
* **GET READY. USE** the workbook you modified in the previous exercise.
  1. In cell A6, type **=NOW()** and press **Enter**. The column width automatically expands, and the current date and time display (see below).
  2. Copy cell **A6** to **A7**.
  3. Select cell **A7**.
  4. On the HOME tab, in the Number group,   
     select **Time** from the Number Format   
     menu. The current time without the date   
     appears in A7 (right).
  5. **SAVE** the workbook as ***05 Practice   
     Solution*** and **CLOSE** it.
* **PAUSE**.Leave Excel open to use in the   
  next exercise.

Step by Step 5: Use the SUM Function

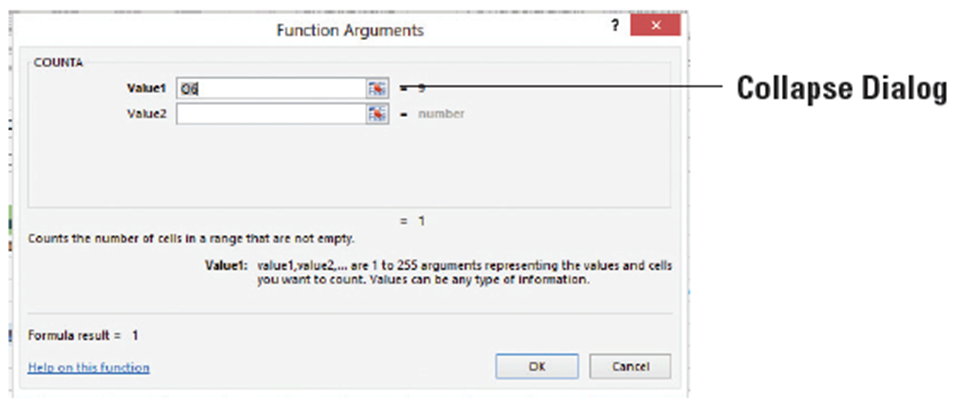
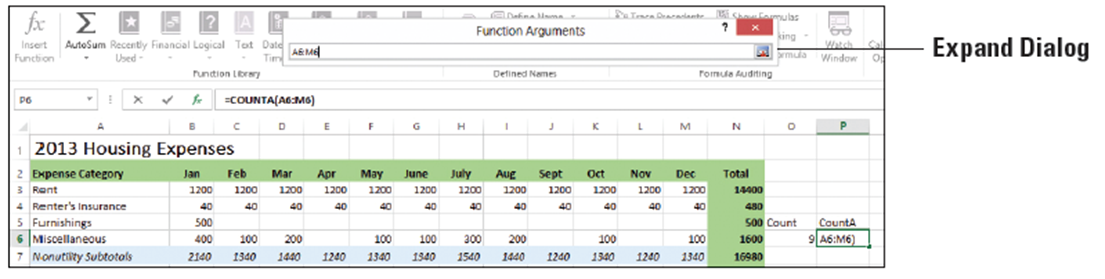
* **GET READY. LAUNCH** Excel if it is not already running.
  1. **OPEN** the ***05 Budget Start*** data file for this lesson. Click **Enable Editing**, if prompted. This workbook is similar to the ***04 Budget*** workbook created in Lesson 4, but with modifications to accommodate the current lesson.
  2. In cell B7, type **=SUM(B3:B6)** and press **Enter**. The result, *2140*, is the sum of January nonutility expenses.
  3. Click in cell **C7**. Click the **FORMULAS**   
     tab and then click the top part of the   
     **AutoSum** button. The SUM function   
     appears with arguments filled in, but   
     only C6 is included. Type **C3:** before   
     C6 to correct the range (right). Press   
     **Enter**. The result, *1340*, is the sum of February nonutility expenses.
  4. Copy cell **C7** to **D7:M7** to enter the remaining subtotals.
  5. Copy cell **N6** to **N7** to enter the total nonutility expenses.
  6. **SAVE** the workbook as ***05 Budget Math***.
* **PAUSE.** Leave the workbook open to use in the next exercise.

Step by Step 6: Use the COUNT Function

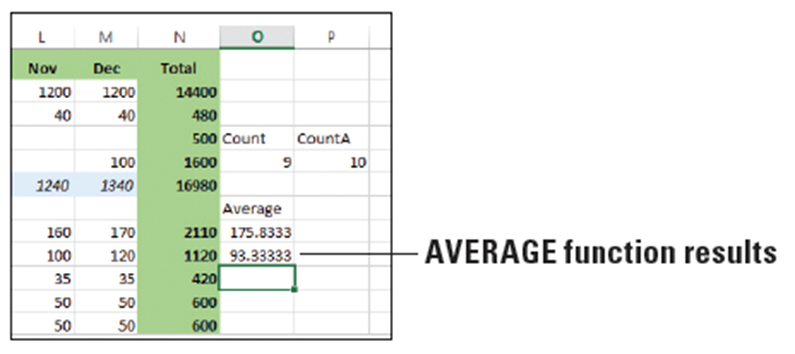
* **USE** the workbook you modified in the previous exercise.
  1. In cell O5, type **Count** and press **Enter**. This is the label identifying the formula you will enter in the next step.
  2. In cell O6, type **=COUNT(B6:M6)** and press **Enter**. The result, *9*, is the number of months in which you budgeted for miscellaneous expenses (see below).
  3. **SAVE** the workbook.
* **PAUSE.** Leave the workbook open to use in the next exercise.



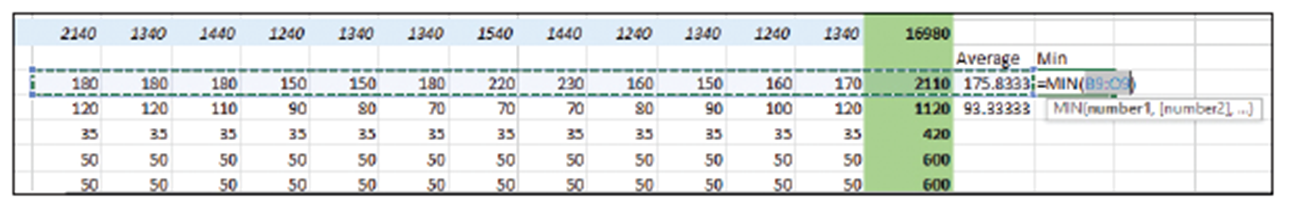
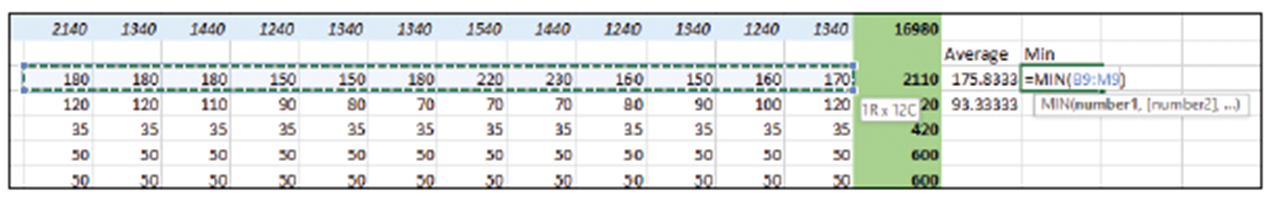
Step by Step 7: Use the COUNTA Function

* **GET READY. USE** the workbook you modified in the previous exercise.
  1. In cell P5, type **CountA** and press **Enter**. This is the label identifying the formula you will enter in the next step.
  2. In cell P6, on the formula bar, click the **Insert Function** button.
  3. In the Insert Function dialog box, in the Search for a function text box, type **counta** and then click **Go**.
  4. Select **COUNTA** in the results list and click **OK**. The Function Arguments dialog box opens.
  5. Click **Collapse Dialog** (see below). The box collapses to a single entry box.
  6. Select **A6:M6**. The new range appears in the dialog box.
  7. Click **Expand Dialog** shown below, and click **OK** to close the dialog box. The result, *10*, is the number of non-blank cells in the range.
  8. **SAVE** the workbook.
* **PAUSE.** Leave the workbook open to use in the next exercise.

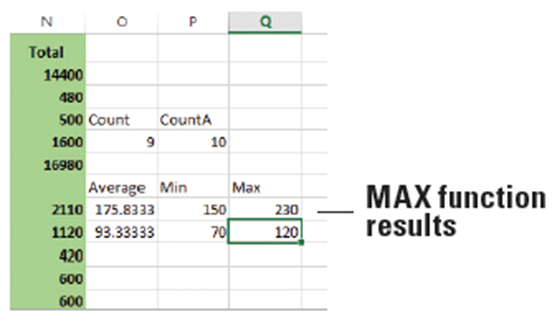
Step by Step 8: Use the AVERAGE Function

* **GET READY. USE** the workbook you modified in the previous exercise.
  1. In cell O8, type **Average**and press **Enter**.
  2. In cell O9, type **=AVERAGE(B9:M9)** and press **Enter**. The result, *175.8333*, is your average expected monthly electricity bill.
  3. In cell O10, type **=AVERAGE(B10:M10)** and press **Enter**. The result, *93.33333*, is your average expected monthly gas bill (below).
  4. **SAVE** the workbook.
* **PAUSE.** Leave the workbook open to use in the next exercise.

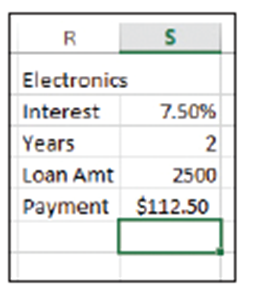
Step by Step 9: Use the MIN Function

* **GET READY. USE** the workbook you modified in the previous exercise.
  1. In cell P8, type **Min**and press **Enter**.
  2. Click in cell **P9** and then click the **FORMULAS** tab.
  3. Click the **AutoSum** button arrow, and then select **Min** from the menu. The range B9:O9 is automatically selected (below). This range is incorrect, so you need to edit it.
  4. Click cell **B9**, hold down the **Shift** key, and click cell **M9**. The range B9:M9 appears in the function, which now looks like =MIN(B9:M9). See below. Press **Enter**. The result, *150,* appears, which is the lowest expected electricity bill for the year.
  5. Copy cell **P9** to cell **P10**. The result, *70*, is the lowest expected gas bill for the year.
  6. **SAVE** the workbook.
* **PAUSE.** Leave the workbook open to use in the next exercise.

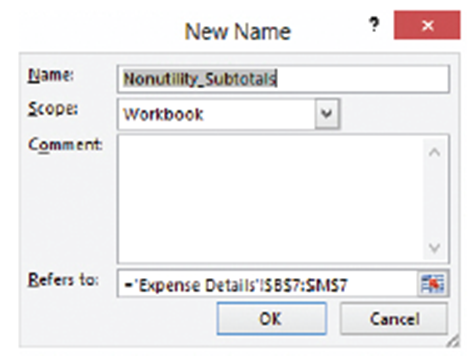
Step by Step 10: Use the MAX Function

* **GET READY. USE** the workbook you modified in the previous exercise.
  1. In cell Q8, type **Max**and press **Enter**.
  2. In cell Q9, type **=MAX(B9:M9)** and press **Enter**. The result, *230*, is the highest monthly electricity bill that you expect to receive.
  3. Copy cell **Q9** to **Q10**. The result, *120*, is the highest monthly gas bill that you expect to receive (see below).
  4. **SAVE** the workbook   
     as ***05 Budget Math   
     Solution*** and **CLOSE** it.
* **PAUSE.** Leave Excel open to   
  use in the next exercise.

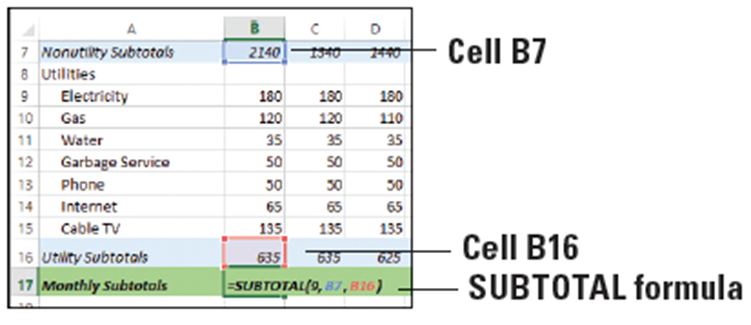
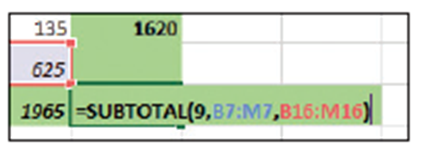
Step by Step 11: Use the PMT Function

* **GET READY. LAUNCH** Excel if it is not already running.
  1. **OPEN** the ***05 Budget PMT*** data file for this lesson.
  2. In cell R2, type **Electronics**and press **Enter**.
  3. In cell R3, type **Interest**and press **Enter**.
  4. In cell R4, type **Years**and press **Enter**.
  5. In cell R5, type **Loan Amt**and press **Enter**.
  6. In cell R6, type **Payment**and press **Enter**.
  7. In cell S3, type **7.5%** and press **Enter**. This is the interest rate on the loan.
  8. In cell S4, type **2** and press **Enter**. This is the number of years in which the loan will be repaid.
  9. In cell S5, type **2500** and press **Enter**. This is the loan amount, which will cover the total cost of the equipment.
  10. In cell S6, type **=–PMT(S3/12,S4\*12,S5)**   
      and press **Enter**. The result, *$112.50*, is your  
       calculated monthly payment (right).
  11. **SAVE** the workbook as *05 Budget PMT   
      Solution* and **CLOSE** it.
* **PAUSE.** Leave Excel open to use in the next exercise.

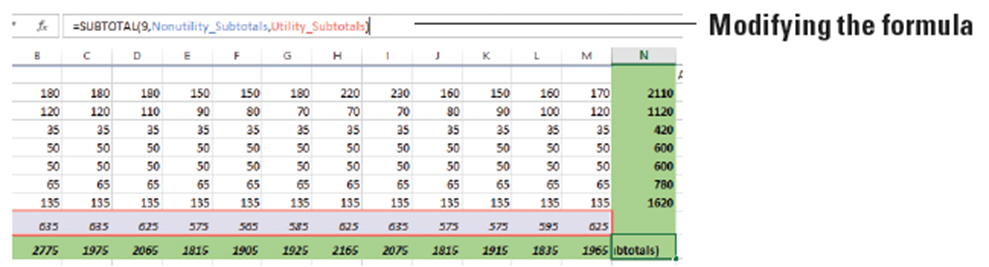
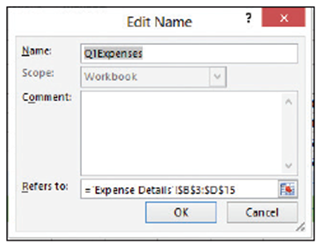
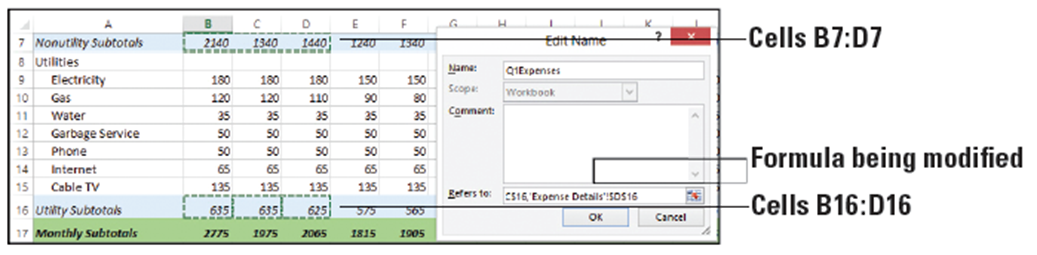
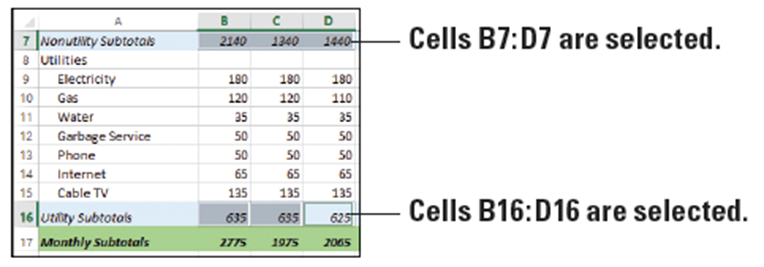
Step by Step 12: Select and Create Ranges for Subtotaling

* **GET READY. LAUNCH** Excel if it is not already running.
  1. **OPEN** the ***05 Budget Subtotals*** data file for this lesson.
  2. Select **B7:M7**.
  3. On the FORMULAS tab, in the Defined Names group, click the **Define Name** button. The New Name dialog box opens.
  4. In the Name text box, verify   
     that **Nonutility\_Subtotals**   
     appears (right). Click **OK**. This   
     names a range for the  
     nonutility subtotal figures.
  5. **SAVE** the workbook.
* **PAUSE.** Leave the workbook open   
  to use in the next exercise.

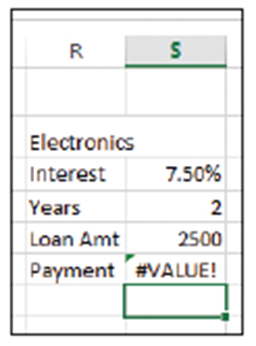
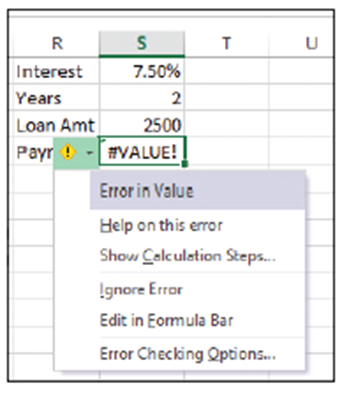
Step by Step 13: Build Formulas to Subtotal

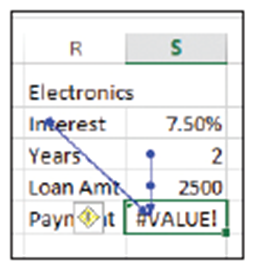
* **GET READY. USE** the workbook you modified in the previous exercise.
  1. In cell B17, type **=SUBTOTAL(9,B7,B16)**, as shown below. Press **Enter**. This formula adds the nonutility subtotal and utility subtotal for January.
  2. Copy cell **B17** to **C17:M17**. All monthly subtotals are entered.
  3. In cell N17, type **=SUBTOTAL(9,B7:M7,B16:M16)**, as shown at right. Press **Enter**. This   
     formula adds all nonutility and   
     utility expenses for the year.
  4. **SAVE** the workbook.
* **PAUSE.** Leave the workbook open to use in the next exercise.

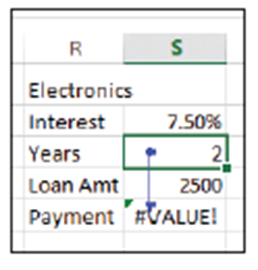
Step by Step 14: Modify Ranges for Subtotaling

* **GET READY. USE** the workbook you modified in the previous exercise.
  1. In cell N17, notice that the result of the current formulas is *24,230*.
  2. Use the formula bar to modify the formula in N17 like this: **=SUBTOTAL(9,Nonutility\_Subtotals,Utility\_Subtotals)**. See below. Press **Enter**. This formula replaces the cell ranges with named ranges to add all nonutility and utility expenses for the year, and the result remains the same at *24,230*.
  3. Click in cell **B19** and then click in the formula bar. Change the formula from =SUM(Q1Expenses) to **=SUBTOTAL(9,Q1Expenses)**. This cell sums the named range Q1Expenses. Because the named range includes monthly data and subtotals, you need to correct the range to include only subtotal figures.
  4. On the FORMULAS tab, in the Defined Names group, click **Name Manager**.
  5. Select **Q1Expenses** in the list and click **Edit**.   
     The Edit Name dialog box opens (right).
  6. Highlight everything in the Refers to text box   
     and press **Backspace** to delete it.
  7. Click cell **B7**, press and hold the **Shift** key,   
     and click **D7**. The range B7:D7 is highlighted.
  8. Press and hold the **Ctrl** key while clicking cells **B16**, **C16**, and **D16**. The selections are shown below.
  9. In the Edit Name dialog box, click **OK**.
  10. In the Name Manager dialog box, click **Close**.
  11. To verify that you selected the proper ranges for the Q1Expenses range, open the **Name** box drop-down list (to the left of the formula bar) and select **Q1Expenses**. The ranges B7:D7 and B16:D16 are selected (below).
  12. Create named ranges for Q2Expenses (E7:G7, E16:G16), Q3Expenses (H7:J7, H16:J16), and Q4Expenses (K7:M7, K16:M16).
  13. Copy the formula from cell **B19** to **B20:B22**. Edit the formulas in cells B20, B21, and B22 to use the appropriate named range. For example, the formula in cell B20 should be =SUBTOTAL(9,Q2Expenses).
  14. **SAVE** the workbook as ***05 Budget Subtotals Solution*** and **CLOSE** it.
* **PAUSE.** Leave Excel open to use in the next exercise.

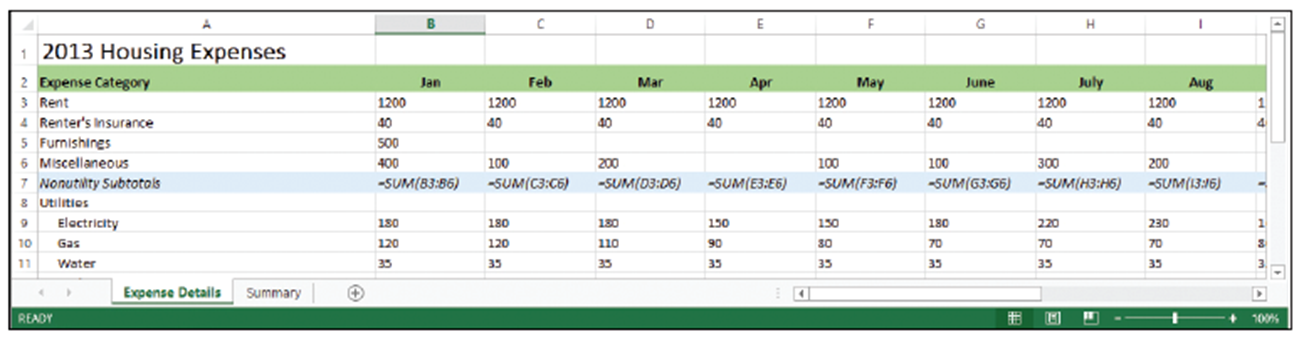
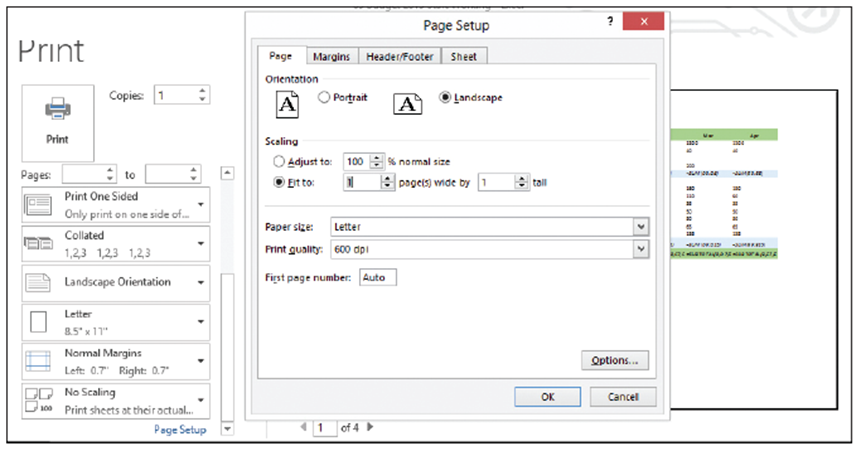
Step by Step 15: Review an Error Message

* **GET READY. LAUNCH** Excel if it is not already running.
  1.  **OPEN** the ***05 Budget Error*** data file for this lesson.
  2. Click in cell **S6**.
  3. Edit the formula to change S3 to **R3** and   
     press **Enter**. The first cell reference in the   
     PMT formula now points to the wrong cell.   
     A #VALUE! error displays in cell S6 (right).
  4. Click in cell **S6**. Click the small, yellow   
     warning icon to the left of the cell. A   
     pop-up menu appears (right). The first   
     item tells you that there is a value error   
     in the function.
  5. Select **Help on this error** in the menu.   
     Excel Help opens to a page on   
     information regarding formula errors. Browse the help topics to see if any of the potential solutions apply to your situation.
  6. **Close** the Excel Help window.
  7. **SAVE** the workbook.
* **PAUSE.** Leave the workbook open to use in the next exercise.

Step by Step 16: Trace a Formula and Remove Trace Arrows

* **GET READY. USE** the workbook you modified in the previous exercise.
  1. Select cell **S6** if it’s not already selected.
  2. On the FORMULAS tab, in the Formula   
     Auditing group, click **Trace Precedents**.   
     Two arrows appear (right). One arrow   
     extends from cell R3 to cell S6, and another (combined) arrow extends from cells S4 and S5 to S6. The arrows indicate that the formula in cell S6 refers to cells R3, S4, and S5, referred to as *precedent cells*.
  3. On the FORMULAS tab, in the Formula Auditing group, click **Remove Arrows**. The trace arrows disappear from the worksheet.
  4. Click in cell **S4**. On the FORMULAS tab,   
     in the Formula Auditing group, click   
     **Trace Dependents**. One arrow appears   
     from cell S4 to cell S6 (right). The arrow   
     indicates that cell S4 is part of the formula in cell S6.
  5. **SAVE** the workbook as *05 Budget Error Solution* and CLOSE it.
* **PAUSE**. Leave Excel open to use in the next exercise.

Step by Step 17: Print Formulas

* **GET READY. LAUNCH** Excel if it is not already running.
  1. **OPEN** ***05*** ***Budget Print*** from your Lesson 5 folder.
  2. On the FORMULAS tab, in the Formula Auditing group, click **Show Formulas**. The formulas appear in the worksheet (below).
  3. Click the **FILE** tab. Click **Print** and view the Print Preview.
  4. Click the **Portrait Orientation** button and select **Landscape Orientation**.
  5. Click the **Page Setup** link at the bottom of the print settings to open the Page Setup dialog box.
  6. On the Page tab of the dialog box, click **Fit to:** and leave the defaults as **1 page(s) wide** by **1 tall** (below). Click **OK** to close the dialog box.
  7. Click the **Print** button at the top-left corner of the Backstage view window to print the worksheet with formulas displayed.
  8. On the FORMULAS tab, in the Formula Auditing group, click **Show Formulas** again to stop displaying formulas in the worksheet.
  9. **SAVE** the workbook as *05 Budget Print Solution* and **CLOSE** it.
* **CLOSE** Excel.