

## Spreadsheets: Mathematics

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# Activity | 1

# Time Charts

## Practice Activity

**Technology Overview** Being able to show your time spent on a project in the form of a chart is an important skill. There are specialized software programs that you can use to record time spent on a task, but a spreadsheet program can take care of nearly everything you need to record and do any calculations for you. Presenting the data on the worksheet can be a clear and easy way to see your data. In this activity, you will use a spreadsheet program to make calculations.

**Content Overview** Working at Reading Treasures Bookstore is a great deal of fun. Besides getting to see all the new titles as soon as they come out, you also shelve books, run the register, help customers find or order books, clean, and perform administrative tasks such as taking care of the paperwork for orders. In this activity, you will fill out a timecard to show how you spent your time for a five-day week.

## TERMS

**Formula** An instruction Excel uses to calculate a number.

**Mathematical operators** Symbols used in mathematical operations: + for addition, - for subtraction, \* for multiplication, / for division, and ^ for exponentiation.

**Order of mathematical operations** The order in which Excel performs the calculations specified in a formula.

**Series** A list of sequential numbers, dates, times, or text.

**Standard column width** The default number of characters that display in a column based on the default font.

## KEY CONCEPTS

### Format Data

- Format data by selecting it and clicking the appropriate button on the Home tab (in Excel 2007) or the Formatting toolbar (in Excel 2003).

### Enter a Formula

- A **formula** is a worksheet instruction that performs a calculation.
- After you enter a formula into the cell, the answer displays in the cell while the formula appears in the formula bar when that cell is selected.
- When creating formulas, you use cell references, values, and **mathematical operators**.

- A formula can also contain a predefined formula, known as a function.
- The following are standard mathematical operators used in formulas:
  - + Addition
  - Subtraction
  - \* Multiplication
  - / Division
  - ^ Exponentiation
- The equal sign (=) must be typed at the beginning of a formula. For example, the formula =B2+B4+B6 adds the values in those three cell locations together.
- When you make a change to a value in a cell that is referenced in a formula, the answer in the formula cell automatically changes.
- The **order of mathematical operations** is important to remember when creating formulas.
  - When calculating a formula, Excel performs operations enclosed in parentheses first.
  - Exponential calculations have the next priority.
  - Moving left to right within the formula, multiplication and division operations are then calculated before the addition and subtraction operations.

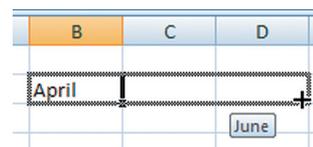
✓ *Keeping the order of mathematical operations in mind, the easiest way to control which parts of a complex formula is calculated first is to simply use parentheses.*
- When typing a percentage as a value in a formula, you can enter it with the percent symbol or as a decimal.
- Excel automatically provides assistance in correcting common mistakes in a formula (for example, omitting a parenthesis).

## Create a Series

- A **series** is a sequence of numbers (such as 1, 2, 3), dates (such as 10/21/07, 10/22/07, 10/23/07), times (such as 2:30, 2:45, 3:00), or text (such as January, February, March).
- To enter a series based on the active cell, drag the fill handle, a small square in the lower-right corner of the active cell. The mouse pointer changes to  as you drag over the range of cells you want to fill with the series.

- ✓ *For example, type January into a cell, then drag the fill handle down or to the left to create the series January, February, March, and so on.*

### Drag the fill handle of the active cell to create a series



- To create an incremental series (i.e., 1, 3, 5, 7), enter the data for the first and second cells of a series, select the two cells, then drag the fill handle for the selection over the range of cells to fill.
- You can also use the fill handle to copy formatting (such as bold, italics, and so on) from one cell to adjacent cells, and not its value.
- In addition, you can use the fill handle to copy both the cell's value and its formatting.

## Change Column Width

- The default Excel workbook is set for a **standard column width**.
- You can quickly adjust a column to fit the longest entry in that column, or you can set the column to any width you like.
- Changing column width changes the width of an entire column or a group of columns—not the width of a single cell.

# PROCEDURES

## Apply Bold, Italics, or Underline

### Excel 2007:

1. Select cell(s) to format.
2. Click **Home** tab ..... (Alt), (H)  
**Font Group**
3. Select as many text effects as you like:
  - Click **Bold** button **B** ..... (1)
  - OR
  - Click **Italic** button **I** ..... (2)
  - OR
  - a. Click arrow on **Underline** button **U** ..... (3)
  - b. Select underline format:
    - **Underline** ..... (U)
    - **Double Underline** ..... (D)

### Excel 2003:

1. Select cell(s) to format.
2. Select as many text effects as you like:
  - Click **Bold** button **B**.
  - OR
  - Click **Italic** button **I**.
  - OR
  - Click **Underline** button **U**.

## Enter Formula Using Mathematical Operators

1. Click cell where answer should display ..... (↑/↓/←/→)
2. Press =
3. Type formula.
  - ✓ Example: =(C2+C10)/2

4. Press **Enter** or click the **Enter** button  ..... (↵/Enter)
  - ✓ Instead of typing a cell reference into a formula, you can simply click the appropriate cell.
  - ✓ To cancel entry of the formula, click the **Cancel** button  or press Esc.

## Create a Series Using Mouse

1. Enter the value to copy in active cell.
2. Select the cell, and then point to its fill handle.
  - ✓ The mouse changes to .
3. Drag the fill handle down, up, left, or right to create a series.
  - ✓ To copy the value and not create a series, press (Ctrl) as you drag.
4. Click the **AutoFill Options** button  and select an option:
  - ✓ If you don't select an option from the AutoFill button, then the range is filled with a series as explained below. Also, the button disappears after you enter data into any other cell.
  - ✓ You can select multiple cells at once, and choose the same option for all of them.

- **Copy Cells** ..... (Alt)+(C)
  - ✓ Copies the contents of the first cell into the fill range.

- **Fill Series** ..... (Alt)+(S)
  - ✓ Increases the value in the first cell by one to fill each cell in the fill range.
- **Fill Formatting Only** ..... (Alt)+(F)
  - ✓ Copies the formatting of the first cell, but not its value.
- **Fill Without Formatting** ..... (Alt)+(O)
  - ✓ Same as Fill Series option, but this does not copy the formatting of the first cell to the cells in the fill range.
- **Fill Days** ..... (Alt)+(D)
  - ✓ Fills cells in the range with dates one day apart.
- **Fill Weekdays** ..... (Alt)+(W)
  - ✓ Fills cells in the range with dates one day apart, skipping over dates that fall on week-ends.
- **Fill Months** ..... (Alt)+(M)
  - ✓ Fills cells in the range with dates one month apart.
- **Fill Years** ..... (Alt)+(Y)
  - ✓ Fills cells in the range with dates one year apart.

## Set Column Width to Fit Longest Entry

1. Drag over column headers of the columns you want to adjust.
2. Double-click right border of any selected column heading.

## ACTIVITY DIRECTIONS

1. Start Excel.
2. Open  **01TimeCharts**.
3. Save the workbook as **01TimeCharts\_xx**.
4. In row 9 of the worksheet, enter the amount of time you spent on Friday performing various tasks such as cleaning and shelving books. Refer to the timecard in Illustration A.
5. In cell H4, type **Total Hours**. Apply bold formatting if needed.
6. In cell H5, enter a formula that calculates the total hours worked on Monday.
7. Fill this formula down the range H6:H9.
8. Adjust column widths as needed.
9. Spell check the workbook.
10. Print the workbook.
11. Close the document, saving all changes if prompted.
12. Exit Excel.

Illustration A

Timecard.xlsx - Microsoft Excel				
	A	B	C	D
1		<b>Reading Treasures Bookstore</b>		
2		<b>Time Breakdown</b>		
3		<b>Employee #20576</b>		
4		<b>Week Ending 4/16</b>		
5				
6		<b>Friday</b>		
7			<b>Time In</b>	<b>Time Out</b>
8		<b>Cleaning</b>	8:00	8:30
9		<b>Customer Service</b>		
10		<b>Register</b>	8:30	11:15
11		<b>Shelving</b>	11:15	12:00
12		<b>Lunch</b>	12:00	1:00
13		<b>Shelving</b>	1:00	4:15
14		<b>Administration</b>	4:15	5:00
15				