

If you want to find the average order of customers from Washington State (abbreviated in the worksheet as WA), you can create the formula `=AVERAGEIF(D3:D6,"=WA", E3:E6)`.

The *AVERAGEIFS*, *SUMIFS*, and *COUNTIFS* functions extend the capabilities of the *AVERAGEIF*, *SUMIF*, and *COUNTIF* functions to allow for multiple criteria. If you want to find the sum of all orders of at least \$100,000 placed by companies in Washington, you can create the formula `=SUMIFS(E3:E6, D3:D6, "=WA", E3:E6, ">=100000")`.

The *AVERAGEIFS* and *SUMIFS* functions start with a data range that contains values that the formula summarizes; you then list the data ranges and the criteria to apply to that range. In generic terms, the syntax runs `=AVERAGEIFS(data_range, criteria_range1, criteria1[,criteria_range2, criteria2...])`. The part of the syntax in square brackets is optional, so an *AVERAGEIFS* or *SUMIFS* formula that contains a single criterion works. The *COUNTIFS* function, which doesn't perform any calculations, doesn't need a data range—you just provide the criteria ranges and criteria. For example, you could find the number of customers from Washington billed at least \$100,000 by using the formula `=COUNTIFS(D3:D6, "=WA", E3:E6, ">=100000")`.

In this exercise, you will create a conditional formula that displays a message if a condition is true, find the average of worksheet values that meet one criterion, and find the sum of worksheet values that meet two criteria.



USE the *PackagingCosts* workbook. This practice file is located in the *Documents\Microsoft Press\Excel2007SBS\Formulas* folder.

OPEN the *PackagingCosts* workbook.

1. In cell G3, type the formula `=IF(F3>=35000,"Request discount","No discount available")`, and press .

Excel 2007 accepts the formula, which displays *Request discount* if the value in cell F3 is at least 35,000 and displays *No discount available* if not. The value *Request discount* appears in cell G3.

2. Click cell G3, and drag the fill handle down until it covers cell G14.

Excel 2007 copies the formula in cell G3 to cells G4:G14, adjusting the formula to reflect the cells' addresses. The results of the copied formulas appear in cells G4:G14.

| | Code | Type | Size | Destination | Expense | Potential Discount | Average Box Cost |
|----|---------|----------|--------|---------------|--------------|-----------------------|-----------------------------|
| 3 | PKG0001 | Box | Small | Domestic | \$ 44,816.00 | Request discount | |
| 4 | PKG0002 | Box | Medium | Domestic | \$ 57,715.00 | Request discount | |
| 5 | PKG0003 | Box | Large | Domestic | \$ 51,965.00 | Request discount | |
| 6 | PKG0004 | Box | Small | International | \$ 31,813.00 | No discount available | International Envelope Cost |
| 7 | PKG0005 | Box | Medium | International | \$ 52,830.00 | Request discount | |
| 8 | PKG0006 | Box | Large | International | \$ 37,476.00 | Request discount | |
| 9 | PKG0007 | Envelope | Small | Domestic | \$ 22,793.00 | No discount available | |
| 10 | PKG0008 | Envelope | Medium | Domestic | \$ 21,056.00 | No discount available | |
| 11 | PKG0009 | Envelope | Large | Domestic | \$ 20,488.00 | No discount available | |
| 12 | PKG0010 | Envelope | Small | International | \$ 10,189.00 | No discount available | |
| 13 | PKG0011 | Envelope | Medium | International | \$ 18,309.00 | No discount available | |
| 14 | PKG0012 | Envelope | Large | International | \$ 17,255.00 | No discount available | |

- In cell I3, type the formula `=AVERAGEIF(C3:C14, "=Box", F3:F14)`, and press **Enter**. The value \$46,102.50, which represents the average cost per category of boxes, appears in cell I3.
- In cell I6, type `=SUMIFS(F3:F14, C3:C14, "=Envelope", E3:E14, "=International")`. The value \$45,753.00, which represents the total cost of all envelopes used for international shipments, appears in cell I6.

| | Code | Type | Size | Destination | Expense | Potential Discount | Average Box Cost |
|----|---------|----------|--------|---------------|--------------|-----------------------|-----------------------------|
| 3 | PKG0001 | Box | Small | Domestic | \$ 44,816.00 | Request discount | \$ 46,102.50 |
| 4 | PKG0002 | Box | Medium | Domestic | \$ 57,715.00 | Request discount | |
| 5 | PKG0003 | Box | Large | Domestic | \$ 51,965.00 | Request discount | |
| 6 | PKG0004 | Box | Small | International | \$ 31,813.00 | No discount available | International Envelope Cost |
| 7 | PKG0005 | Box | Medium | International | \$ 52,830.00 | Request discount | \$ 45,753.00 |
| 8 | PKG0006 | Box | Large | International | \$ 37,476.00 | Request discount | |
| 9 | PKG0007 | Envelope | Small | Domestic | \$ 22,793.00 | No discount available | |
| 10 | PKG0008 | Envelope | Medium | Domestic | \$ 21,056.00 | No discount available | |
| 11 | PKG0009 | Envelope | Large | Domestic | \$ 20,488.00 | No discount available | |
| 12 | PKG0010 | Envelope | Small | International | \$ 10,189.00 | No discount available | |



CLOSE the *PackagingCosts* workbook.