

How to calculate Discount and Sales Tax

How much does that shirt cost?

Lillard's, your local department store, is having their annual fall sale. Clothing, shoes, jewelry and many other items are on sale. The original price of each item is listed below.



Question of the Day

How much does it cost to buy the \$22.95 blue shirt? Does it cost \$22.95? How does the sale discount and sales tax affect the total cost of the shirt?

First let's figure out how to find the sale price based on the original price and the percent of discount.

The color of the price tag for each item represents the percent of discount.

- = 25% off the original price
- = 50% off the original price
- = 15% off the original price

First we will use the following formula to calculate the sale price:

$$\text{Sale Price} = \text{original price} - (\% \text{ of discount} * \text{original price})$$

This formula may appear confusing, so let's break it down into smaller steps.

Step 1: Find the amount of discount.

To do this, you need to find the amount of discount of the original price. To find a percent of a number you first convert the percent to a decimal (i.e. 25% = 0.25). Then you multiply this decimal by the original price.

For example the \$22.95 shirt has a 25% discount.

Amount of Discount = 25% of \$22.95 which is $0.25 * \$22.95 = 5.7375$.

Round this to \$5.74

Step 2: Find the sale price by using the formula

Amount of Discount from Step 1

Sale Price = original price – (% of discount * original price)

For our shirt example:

Sale Price = \$22.95 - \$5.74 = \$17.21

Therefore, the sale price is \$17.21. However, we want to find the **Total Cost** of the shirt. What other piece of information do we need in order to calculate the Total Cost? Have you ever heard of Sales Tax? Sales Tax is an additional amount of money that will be **added** to the cost of the item.

Sales Tax is given as a percentage and varies from state to state. In the year 2005, sales taxes range from 4% - 8%. For our lesson today we will assume **Sales Tax = 5%**.

We will use the following formula to calculate the sales tax:

Sales Tax = Sales Tax rate * Sale Price

In our example we found the Sale Price to be \$17.21 and we will use a Sales Tax rate of 5%. Convert the 5% to a decimal. 5% = 0.05

Sales Tax = 0.05 * \$17.21 = \$0.8605 = \$0.86

Lastly, the **Total Cost = Sale Price + Sales Tax**

Therefore, the total cost of the blue shirt is $\$17.21 + \$0.86 = \$18.07$

Below are the calculations for the total cost of the \$75.50 boots at 15% off.

Amount of Discount = $0.15 * \$75.50 = \11.33

Name _____



Date _____

$$\text{Sale Price} = \$75.50 - \$11.33 = \$64.17$$

$$\text{Sales Tax} = 0.05 * \$64.17 = \$3.21$$

$$\text{Total Cost} = \$64.17 + \$3.21 = \$67.38$$

Now it's your turn to find the calculations. Fill in the table below with the appropriate numbers. Use a sales tax rate of 5%. (Note: The calculations are below the table to check your answers.)

Item	\$29.95 sunglasses at 50% off	\$30.00 shirt at 15% off	\$44.95 necklace at 25% off
Amount of Discount	\$14.98	\$4.50	\$11.24
Sale Price	\$14.97	\$25.50	\$33.71
Sales Tax	\$0.75	\$1.28	\$1.69
Total Cost	\$15.72	\$26.78	\$35.40

Sunglasses: Amount of Discount = $0.50 * \$29.95 = \14.98

$$\text{Sale Price} = \$29.95 - \$14.98 = \$14.97$$

$$\text{Sales Tax} = 0.05 * \$14.97 = \$0.75$$

$$\text{Total Cost} = \$14.97 + \$0.75 = \$15.72$$

Shirt: Amount of Discount = $0.15 * \$30.00 = \4.50

$$\text{Sale Price} = \$30.00 - \$4.50 = \$25.50$$

$$\text{Sales Tax} = 0.05 * \$25.50 = \$1.28$$

$$\text{Total Cost} = \$25.50 + \$1.28 = \$26.78$$

Necklace: Amount of Discount = $\$44.95 * 0.25 = \11.24

$$\text{Sale Price} = \$44.95 - \$11.25 = \$33.71$$

$$\text{Sales Tax} = 0.05 * \$33.71 = \$1.69$$

$$\text{Total Cost} = \$33.71 + \$1.69 = \$35.40$$