

Lesson 6-4

Example 1

The price of a DVD player is \$89.95. The sales tax is 7%. Find the amount of the sales tax and the total cost of the player.

Solution

Find the sales tax.

$$\begin{aligned} \text{sales tax} &= \text{percent of sales tax} \cdot \text{regular price} \\ \text{sales tax} &= 0.07 \cdot 89.95 \\ \text{sales tax} &= 6.30 \quad \text{Round } 6.2965 \text{ to } 6.30. \end{aligned}$$

Find the total cost.

$$\begin{aligned} \text{total cost} &= \text{regular price} + \text{sales tax} \\ \text{total cost} &= 89.95 + 6.30 \\ \text{total cost} &= 96.25 \end{aligned}$$

The amount of sales tax on the DVD player is \$6.30, and the total cost is \$96.25.

Example 2

Bob earns \$1440 every two weeks. His employer deducts 22% of his pay for federal and state income taxes. Calculate the amount of Bob's paycheck and his net pay.

Solution

Find the income tax using a proportion or an equation.

$$\begin{aligned} \frac{x}{1440} &= \frac{22}{100} && \text{Use a proportion.} && x = 1440 \cdot 0.22 && \text{Use an equation.} \\ x \cdot 100 &= 1440 \cdot 22 && \text{Use the cross products.} && x &= 316.80 \\ 100x &= 31,680 \\ \frac{100x}{100} &= \frac{31,680}{100} \\ x &= 316.80 \end{aligned}$$

Find Bob's net pay. $\$1440 - \$316.80 = \$1123.20$

Bob pays \$316.80 for income tax, and his net pay is \$1123.20.

Example 3

The Washburns own a home that is valued at \$182,000. The property tax rate for their home is about 2%. Estimate how much the Washburns will pay in property taxes.

Solution

$$\frac{x}{182,000} = \frac{2}{100}$$

Use a proportion.

$$x = 182,000 \cdot 0.02 \quad \text{Use an equation.}$$

$$x = 3640$$

$$x \cdot 100 = 182,000 \cdot 2 \quad \text{Use the cross products.}$$

$$\frac{100x}{100} = \frac{364,000}{100}$$

$$x = 3640$$

The Washburns will pay about \$3640 in property tax.

Example 4

Rachel purchased a portable CD player for \$34.99. The total amount of the purchase was \$36.74. Find the sales tax rate.

Solution

Find the amount of tax. $\$36.74 - \$34.99 = \$1.75$

Find the tax rate.

Let x represent the sale tax rate as a whole number.

Let r = the sales tax rate as a decimal.

$$\frac{x}{100} = \frac{1.75}{34.99}$$

Use a proportion.

$$1.75 = 34.99r \quad \text{Use an equation.}$$

$$\frac{1.75}{34.99} = \frac{34.99x}{34.99}$$

$$x \cdot 34.99 = 100 \cdot 1.75$$

$$0.05 = r$$

$$\frac{34.99x}{34.99} = \frac{175}{34.99}$$

$$x \square 5$$

The sales tax rate is 5%.