

7-6 Percent Problems

Objective: To solve problems involving percents.

- Example 1** Find the change in price.
- The original price of the suit Carmen wants was \$275. It is now on sale for \$198.
 - Calvin originally paid \$90 for an old coin. It is now worth \$145.

Solution To find the change in price, you calculate the difference between the original price and the new price.

- The price decreased by $\$275 - \198 , or \$77.
- The price increased by $\$145 - \90 , or \$55.

- Example 2** The price of a salad bar increased from \$3.00 to \$3.45. What was the percent increase?

Solution

Step 1 The problem asks for the percent of increase.

Step 2 Let n = the percent of increase.

Step 3
$$\frac{\text{percent of change}}{100} = \frac{\text{change in price}}{\text{original price}}$$

Step 4
$$\begin{aligned} \frac{n}{100} &= \frac{45}{300} \\ 300n &= 4500 \\ n &= 15 \end{aligned}$$

Step 5 The check is left to you. There was a 15% increase.

Complete the table.

	Item	Original price	New price	% of increase
1.	Shirt	\$20.00	\$22.00	?
2.	Sweater	\$48.00	\$60.00	?
3.	Tennis racket	\$32.00	\$36.00	?
4.	Movie ticket	\$4.00	\$5.00	?
5.	Bus ticket	\$40.00	?	5%
6.	Newspaper	\$.25	?	60%
7.	Books	\$80.00	?	20%
8.	Magazine subscription	?	\$15.00	25%
9.	Taxi fare	?	\$14.00	$33\frac{1}{3}\%$
10.	Airplane ticket	?	\$168.00	5%

7-6 Percent Problems (continued)

Example 3 The price of a video camera decreased from \$800 to \$760. What was the percent decrease?

Solution

Step 1 The problem asks for the percent of decrease.

Step 2 Let x = the percent of decrease.

Step 3 Use the formula $\frac{\text{percent of change}}{100} = \frac{\text{change in price}}{\text{original price}}$

Step 4

$$\begin{aligned}\frac{x}{100} &= \frac{40}{800} \\ 800x &= 4000 \\ x &= 5\end{aligned}$$

Step 5 The check is left to you. There was a 5% decrease.

Complete the table.

	Item	Original price	New price	% of decrease
11.	Video tape	\$6.00	\$4.50	?
12.	Baseball glove	\$32.00	\$28.00	?
13.	Skates	\$60.00	\$51.00	?
14.	T-shirt	\$7.50	\$6.00	?
15.	Watch	\$80.00	?	30%
16.	Video rental	\$2.00	?	25%
17.	Audio cassette	\$6.00	?	20%
18.	Camera	?	\$210.00	12.5%
19.	Film	?	\$4.00	20%
20.	Suit	?	\$136.00	15%

Mixed Review Exercises

Solve. If the equation has no solution, write *No solution*.

1. $\frac{2x + 3}{x - 3} = 5$

2. $\frac{a + 2}{3} = \frac{1}{a}$

3. $\frac{4}{n} = \frac{7}{3n}$

4. $1.3x = 52$

5. $m^2 + 4m + 3 = 0$

6. $0.4x + 3.2 = 1.2x$

Simplify.

7. $(x + 2)8$

8. $-3(x - 2y)$

9. $8a + 5 - 3a + c$