

9-9 Percent of Increase or Decrease

Objective: To find a percent of increase or decrease.

Terms to Know

Percent of increase The percent that an *amount of increase* is of the *original amount*.

$$\text{percent of increase} = \frac{\text{amount of increase}}{\text{original amount}}$$

Percent of decrease The percent that an *amount of decrease* is of the *original amount*.

$$\text{percent of decrease} = \frac{\text{amount of decrease}}{\text{original amount}}$$

Example 1 Find the percent of increase.

original amount: 24

new amount: 36

Solution First, find the amount of increase.

$$36 - 24 = 12$$

$$\text{percent of increase} = \frac{\text{amount of increase}}{\text{original amount}}$$

$$= \frac{12}{24}$$

$$= \frac{1}{2} = \frac{50}{100} = 50\%$$

So the percent of increase is 50%.

Find the percent of increase.

1. original amount: \$80; new amount: \$96
2. original number: 45 papers; new number: 54 papers
3. original earnings: \$23.50; new earnings: \$29.61
4. original attendance: 1440; new attendance: 1800
5. original length: 4 ft; new length: $5\frac{1}{2}$ ft
6. original time: 72.42 s; new time: 84.49 s
7. original sales: \$42; new sales: \$48.30
8. original commission: \$675; new commission: \$900
9. original height: 42 in.; new height: 49 in.
10. original value: \$43.20; new value: \$47.52

9-9 Percent of Increase or Decrease (continued)**Example 2** Find the percent of decrease.

original amount: 96

new amount: 72

Solution First find the amount of decrease.

$$96 - 72 = 24$$

$$\text{percent of decrease} = \frac{\text{amount of decrease}}{\text{original amount}}$$

$$= \frac{24}{96}$$

$$= \frac{1}{4}$$

$$= 25\%$$

So the percent of decrease is 25%.

Find the percent of decrease.

11. original number: 125 papers; new number: 105 papers
12. original distance: 12 km; new distance: 8 km
13. original number of cars: 350; new number of cars: 329
14. original inventory: 750 books; new inventory: 720 books
15. original time: $3\frac{3}{4}$ h; new time $2\frac{1}{2}$ h
16. original budget: \$9 million; new budget: \$7.5 million
17. original census: 1500 people; new census: 1250 people
18. original sales: 340 homes; new sales: 289 homes
19. original staff: 1080 workers; new staff: 918 workers
20. original cost: \$65; new cost: \$57.20

Spiral Review

21. Solve: $3.2 + 1.6n = 12.8$ (Lesson 8-8)
22. Write the ratio 10 in. to 3 yd as a fraction in lowest terms. (Lesson 9-1)
23. Write $\frac{7}{25}$ as a decimal. (Lesson 7-7)
24. The original price of a CD is \$12.50. The new price is \$10. Find the percent of decrease. (Lesson 9-9)