

2-7 Percent of Change

Percent of Change is the ratio of the change in an amount to the original amount expressed as a percent. If the new number is greater than the original number, the percent of change is a **percent of increase**. If the new number is less than the original number, the percent of change is a **percent of decrease**.

$$\frac{\text{amount of change}}{\text{original}} = \frac{\quad}{100}$$

Determine whether each percent of change is a percent of increase or decrease. Then find the percent of change. Round to the nearest whole percent.

1. Original: 20, Final: 25
 $\frac{25-20}{20} = \frac{5}{20} = \frac{25}{100}$ → **increase 25%**

2. Original: 25, Final: 17
 $\frac{17-25}{25} = \frac{-8}{25} = \frac{-32}{100}$ → **decrease 32%**

3. Original: 98, Final: 121
 $\frac{121-98}{98} = \frac{23}{98} \approx 23.4\% \approx$ **23% increase**

Find the total price of the item.
 2. messenger bag: \$28
 tax: 7.25%

$$28 \times 0.0725 = 2.03$$

$$+ 28.00$$

$$\hline \$30.03$$

3. vase: \$5.50
 tax: 6.25%

$$5.50 \times 1.0625 = 5.84$$

Find the discounted price.

4. Computer: \$1099.00
 Discount: 25%

$$1099 \times 0.25 = 274.75$$

$$1099 - 274.75 = 824.25$$

5. athletic shoes: \$59.99
 discount: 40%

$$59.99 \times 0.40 = 23.996$$

$$59.99 - 23.996 = 35.99$$

Find the final price.

6. sweater: \$14.99
 discount: 12%
 tax: 6.25%

$$14.99 \times 0.12 = 1.7988$$

$$14.99 - 1.7988 = 13.1912$$

$$13.1912 \times 1.0625 = 13.99$$

7. board game: \$25
 discount: 15%
 tax: 7.5%

$$25 \times 0.15 = 3.75$$

$$25 - 3.75 = 21.25$$

$$21.25 \times 1.075 = 22.84$$

10. **Sales:** The price a used-book store pays to buy a book is \$5. The store sells the book for 28% above the price that it pays for the book. What is the selling price of the book?

$$5 \times 0.28 = 1.40$$

$$5 + 1.40 = 6.40$$

11. **Prom:** A limo costs \$85 to rent for 3 hours plus 7% sales tax. What is the total cost to rent a limo for 6 hours?

$$85 + 85 = 170$$

$$170 \times 0.07 = 11.90$$

$$170 + 11.90 = 181.90$$

12. **Skateboard:** A skateboard costs \$99.99. If you have a coupon for 20% off, how much will you save? How much will you pay if there is 5% sales tax added?

Sale:

$$99.99 \times 0.20 = 19.998$$

$$99.99 - 19.998 = 79.992$$

$$79.992 \times 0.05 = 3.9996$$

$$79.992 + 3.9996 = 83.9916 \approx 84.00$$

Final Price:

$$99.99 \times 0.075 = 7.49925$$

$$99.99 - 7.49925 = 92.49075$$

$$92.49075 \times 1.05 = 97.1152875 \approx 97.12$$