

$$\text{Percent Change: percent change} = \frac{\text{new value} - \text{original value}}{\text{original value}} \times 100$$

$$\text{Percent Error: percent error} = \frac{\text{measured value} - \text{known value}}{\text{known value}} \times 100$$

$$\text{Percent Concentration: percent concentration of } \mathbf{X} = \frac{\text{amount of } \mathbf{X}}{\text{total amount of mixture}} \times 100$$

Exercises

1. A wooded lot containing 640 trees is to be cleared so that a building can be constructed. The report on the lot states that 2.5% of the trees are live oak trees. The building owner has decided to retain all of the live oak trees. How many trees will be left on the lot?
2. A married couple paid \$46,200 in federal income tax last year. If their total income was \$132,000, what was the percent used to determine their tax?
3. The assessed valuation of a home is 25% of the fair market value of the home. If the assessed valuation is \$27,125, what is the fair market value of the home?
4. A solution containing 358 liters of alcohol and 782 liters of water is made. What percent of the solution is alcohol?
5. A concrete mixture containing 9.00 ft³ of cement is 14.2% cement by volume. What is the volume of the concrete mixture?
6. A 500 gallon drum contains 438 gallons of gasohol. If the gasohol is 5.58% alcohol by volume, then how many gallons of alcohol are there in the gasohol?
7. A person charged with a DUI violation gave a 6.00 gram sample of blood for evaluation. The test results revealed 5.64×10^{-3} gram of alcohol in the blood. A person with a blood alcohol level of 0.08% is considered to be legally impaired. Was this person legally impaired? Why or why not?
8. Utility bills for a 2000 ft² home in Lafayette, La. averaged \$132.00 per month. After installing 9 inches of insulation in the attic, the average utility bill is \$108.00 per month. What is the percent change in the utility bills?
9. The value of a company's common stock increased 5.60%. If the value was \$35.00 per share, then what is the value per share after the increase?
10. The temperature in Lafayette, La. was 68.0°F yesterday morning. By mid-afternoon the temperature had increased by 45.0%. What was the afternoon temperature?
11. A 1.00 gram weight measures 1.02 grams on a scale. What is the percent error of the measurement on the scale?
12. A certain soft drink bottling company guarantees that each can of soft drink will contain 12.00 ounces of soda $\pm 0.15\%$. What is the range of ounces of soft drink that might be found in each can?
13. The boiling point for methyl alcohol is known to be 85.0°F, but the thermometer you are using is known to give temperature readings that are 5.8% less than they should be. Using that thermometer, what temperature do you determine the boiling point to be for methyl alcohol?