

Assignment

Write

Explain how to solve for any unknown with a percent equation.

Remember

When a tip, gratuity, or commission varies directly with the cost of the product, you can represent the situation using the equation $t = kb$, where t represents the amount of tip, gratuity, or commission, k represents the percent of tip, and b represents the total cost of the product.

Practice

- Ben recently purchased a new home. In order to be able to afford the home, he came up with a budget that breaks down his monthly income as follows: 30% for housing, 20% for food, 22% for utilities, 10% for savings, 6% for entertainment, and 12% for personal items. Ben has a net income of \$4000 per month. Calculations for budget are identical to calculations for tips and commissions. Use what you know about computing tips and commissions to answer each question. For each question,
 - set up and solve a proportion,
 - set up and solve a percent equation, and
 - write a sentence to explain your answer.
 - Calculate the amount of money that Ben will have each month for his most essential budget items: housing, food, and utilities.
 - Last month Ben spent \$380 on food and \$420 on personal items. What percent of his monthly income did he spend on these items?
 - After 5 years, Ben's income has undergone several increases. Last month, Ben put \$600 in savings, which was 10% of his net income. What is Ben's new monthly net income?
 - Ben would like to purchase a new home. He figures out that his monthly housing costs for the new home will be \$2100 per month. If he wants to keep the housing costs as 30% of his budget, what will his monthly net income need to be?
- Joan receives a 4% commission on the merchandise she sells in a department store.
 - Write an equation to represent the relationship between the total sales (s) and the commission (c) received.
 - How much commission would Joan receive if the merchandise she sold totaled \$139?
 - How much would Joan have to sell to earn a commission of \$100?
- Serena deposits \$1200 into a savings account that earns simple interest. The interest is applied to her account at the end of each year. Complete the table.

Year	Principal Balance	Interest Rate	Interest Earned
1	\$1200	2%	
2	\$1224	2%	
3		3%	

4. In the community of Greendale, a local restaurant allows student-based clubs to host fundraising nights. The organizations must hand out flyers ahead of time, and the customers who come to dine at the restaurant must present the flyer with their order. The restaurant will donate 15% of the total sales to the organization.
- If the sales total \$8000, how much will the organization make?
 - Write an equation to represent the relationship between the dinner sales (d) and the amount (A) the organization will receive.
 - What is the constant of proportionality? Interpret the constant of proportionality for this problem situation.
 - What were the total dinner sales if the organization was given \$885 by the restaurant? Explain your reasoning.
5. A restaurant also donates a percentage of its total sales for the entire day to a local soup kitchen. The table shows the total sales for different days and the amount that was donated to the soup kitchen.

Total Sales (in dollars)	Amount Donated (in dollars)
10,400	416
14,300	572
15,500	620
18,300	732

- What percent of the total sales does the restaurant donate to the soup kitchen? How do you know?
- Write an equation to represent the relationship between the total sales (s) and the amount donated to the soup kitchen (d).
- What is the constant of proportionality? Interpret the constant of proportionality for this problem situation.
- If the restaurant donated \$690 to the soup kitchen, what were the total sales for the day?

Stretch

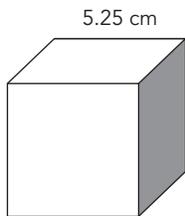
AnnaMarie goes to dinner at a restaurant where the sales tax on meals is 9%. She leaves a tip that is 175% of the amount of sales tax. If her total bill is \$45, what was the cost of her meal and what percent tip did she leave?

Review

- Lyndi has started a home business making and selling all natural goat milk soaps.
 - If the cost of the materials for a basic bar of soap is \$2.50 and Lyndi sells each bar of soap for \$4.50, what is the markup percent?
 - Lyndi sells intricately shaped holiday soaps for \$9 each. After each holiday, she marks the related soaps down to \$6.75. What percent discount should she advertise on her social media site?
- Alexander is selling homemade granola to raise money to support having a pet iguana. He makes a batch of granola and then divides it into 14 individual bags for sale. The total cost of the ingredients is \$35.
 - Alexander sells each bag at a markup of 50%. How much does each bag cost? How much money does Alexander make?
 - If Alexander has not sold all of the granola after 3 days, he sells the remaining bags for 60% of the cost. What is the sale price of the individual bags of granola?
- Jameer works in a men's clothing store. The amount of money (m) he makes is directly proportional to the number of hours (h) he works.
 - Complete the table to show the amount of money Jameer earns for different amounts of time that he works.
 - Determine the constant of proportionality.
 - Write an equation to show the relationship between m and h .
 - How many hours does Jameer have to work to make \$100?
 - How much money does Jameer earn if he works 40 hours?
- Determine the volume of the (a) cube and (b) rectangular prism.

Hours (h)	Money (m) (in dollars)
3	
	56.25
6	75.00
7.5	

a.



b.

