

Section 2.7 One-Step Equations with PercentagesReview of Percentages

1. Complete the missing values in the tables.

Decimal	Percent
1.4	
0.03	
0.782	
0.99	

Decimal	Percent
	1.5%
	18%
	5%
	43%

Using Equations to Solve Percent Problems

2. Use $A = P \cdot B$ to write an equation and solve it algebraically. Check it mentally and write the answer in a complete sentence.

a. 74% of what number is 120?

b. What percent of 30 is 8?

c. What is 18% of 90?

Percent Applications

3. Identify which is the part (A) and which is the whole (B) and use $A = P \cdot B$ to solve the problem. Write your answer in a complete sentence.

a. Maria plays basketball and last season she attempted 48 free throws and made 38 of them. What percentage of her free throws did she make?

b. Jess earned \$550 in commissions last month, which is 5% of the jewelry they sell. How much in jewelry did Jess sell?

c. Vuthy paid 18% percent of his income in taxes and he made \$65,000 last year. How much did he pay in taxes?

Percent Increase/Decrease

4. Tuition at a local college went from \$99 to \$105 per credit hour.

a. What is the amount of the increase?

b. What is the percentage increase?

5. A company downsized from 10,000 employees to 8,825 employees.

a. What was the amount of the decrease?

b. What was the percentage decrease?

Section 2.8 Modeling with Equations and Inequalities

**Finding an Original Price given a Percentage and the Total

6. The price of a sweater, which was on sale for 20% off was \$34.72. What was the original price of the sweater? Write the equation but you don't need to solve it yet.

7. A solar panel company adds 9% to the price for installation. If the total bill is \$43,055, what is the cost of the solar panels? Write the equation but you don't need to solve it yet.

8. At the Mad Genius Escape Room on Hawthorne, the cost is \$30 per person. If you want the room to be private for your party the cost is \$27 plus \$24 per person. Define a variable and write an expression for each scenario. Source: <https://www.madgeniuses escapes.com/faq>

Number of People in your party	Total Cost (not private)	Total Cost (private)
2		
3		
4		
5		
x		

Write an equation that represents how many people it would take for the two plans to be equal. (We will not solve it yet.)

Translating Phrases

9. Translate the Following Expressions/Equations/Inequalities

a. The sum of a number and 11.

b. The quotient of three times a number and 4.

c. Twice a number is less than 20.

d. Four less than a number is 10.

More Practice

10. A book was on sale for 15% off and the sale price was \$16.99. What was the original price of the book? Write an equation to model this scenario. Do not solve it yet.

11. A rental car company charges a base weekend fee of \$35.95 and then \$0.58 cents per mile. If the total bill is \$120, how many miles were driven? Write an equation to model this scenario. Do not solve it yet.

12. Translate the Following Expressions/Equations/Inequalities

a. The quotient of a number and 7 is 3.

b. Half of a number.

c. A number increased by 12

d. Five less than two times a number is greater than or equal to 87.

13. Write an equation and solve it algebraically. Check it mentally and write the answer in a complete sentence.

a. What percent of 40 is 160?

b. What is 75% of 32?

c. 82 is 15% of what?

14. Ronin has an annual salary of \$36,000 and he is getting a 2.5% raise. How much is his raise and his new salary?

15. A book was on sale for \$15.99 and the original price was \$26.99. What percent off was the book?

16. The population of dogs in a shelter decreased from 52 to 39. What is the percentage decrease?