

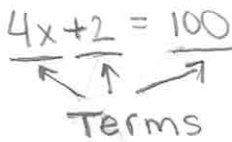


Variables and Patterns

Complete the vocabulary chart by filling in the missing information.

Term	Definition	Example
variable	A quantity that can change.	$4x - 7 = 5$ x is the variable
average speed	The number of miles per hour averaged over an entire trip.	
dependent variable	One of the two variables in a relationship. Its value depends upon another variable.	
independent variable	One of the two variables in a relationship. Its value determines the value of the dependent variable.	
income	The amount of money you take in.	
profit	The amount by which income is greater than expenses.	
coefficient	The numerical factor in any term of an expression.	$4x - 7 = 5$ 4 is the coefficient

Variables and Patterns (continued)

Term	Definition	Example
equation	A rule containing variables that represent a mathematical relationship.	$\frac{2}{7} = \frac{x}{42}$ $4x + 2 = 100$
expression	A mathematical phrase containing numbers, variables, and operation symbols.	$4x + 2$
rate of change	The amount of change in the dependent variable produced by a given change in the independent variable.	
equivalent expressions	Expressions that represent the same quantity.	$2 + 5$ & $3 + 4$
term	A number, a variable, or the product of a number and a variable.	$4x + 2 = 100$ 
solution of an equation	The value or values of the variables that make an equation true.	

Writing and Solving Equations from Word Problems Guided Notes

A. A new one-year membership at RecPlex costs \$160. A registration fee of \$28 is paid up front, and the rest is paid monthly. How much do new members pay each month?

1. Define the variable (What do we not know?):
2. Determine the constant (if there is one):
3. What is the rate (look for “each”, “per”, something that will repeat):
4. Write the equation and solve:

B. Juan’s cell phone company charges \$35 a month for phone service plus \$0.50 for each text message. How many text messages does Juan send in a month if his bill was \$52?

- | | |
|-------------------------|----------------------------------|
| 1. Define the variable: | 2. Determine the constant: |
| 3. What is the rate: | 4. Write the equation and solve: |

C. Friendship’s soccer team purchased uniforms and equipment for a total cost of \$912. The equipment cost \$612, and the uniforms cost \$25 each. How many uniforms did the school purchase?

- | | |
|-------------------------|----------------------------------|
| 1. Define the variable: | 2. Determine the constant: |
| 3. What is the rate: | 4. Write the equation and solve: |

D. Long's Coffee Shop sells a refill mug for \$8.95. Each refill costs \$1.50. Last month, Jalissa spent \$26.95 on a mug and refills. How many refills did she buy?

Write the equation and solve:

E. The bill for the repair of a computer was \$179. The cost for parts was \$44, and the labor charge was \$45 per hour. How many hours did it take to repair the computer?

Write the equation and solve:

F. The Elk Grove Bowling Alley offers a special. Each game costs \$2.50, and shoe rental \$2. You spend \$14.50 total. How many games did you bowl?

Write the equation and solve:

G. The sum of the measures of the angles of all triangles is 180° . If one angle of the triangle measures 45° , and the other two angles are equal, what is the measure of each of the other two angles?

Write the equation and solve:

H. Sandra scores 4 baskets in his first basketball game. She then scored the same number of baskets in each of her next 3 games. If Sandra made 19 baskets total, how many baskets did she score in each of the three games?

Write the equation and solve:

I. You and three friends go to the town carnival. You have a coupon for \$20 off that will save your group money! If the total bill to get into the carnival was \$100, how much does one regular price ticket cost?

Write the equation and solve: