

Word Problems

Some problems require more than just comparing and ordering the numbers. Carefully read the question, underlying any keywords that tell you which operation to perform. Some examples of keywords are listed in the given table.

Add	sum, total, all together, more than
Subtract	difference, less than, take away, taken from, have left
Multiply	of, times, product
Divide	quotient, times greater than, times less than, groups, split

Next, translate the words into mathematical expression. When solving problems involving rational numbers, you must perform the operations in a specific order to get the correct answer. You can remember this order by recalling the acronym BEDMAS.

It is a good idea to use mental math to estimate the answer before beginning your calculations on paper or using your calculator. Having an estimate of what the answer should be will help you determine if you have made an error in your calculations.

Example

Mr. Pruden buys two boxes of doughnuts and three boxes of chocolates from the local grocery store. A box of doughnuts costs \$3.59, a box of chocolates costs \$5.99, and the tax is $\frac{1}{10}$ of the total purchase. What is the total cost of Mr. Pruden's groceries, including tax?

Solution

Step 1

Convert all the numbers to decimals.

$$\frac{1}{10} = 1 \div 10 = 0.10$$

Step 2

Identify keywords, and convert them into mathematical terms.

The question asks for the “total cost of Mr. Pruden’s groceries, including tax.” This means you must add up the cost of all the items Mr. Pruden purchased, calculate the amount of tax owed on the total purchase, and then add the two numbers together to calculate the total groceries, including tax.

Total purchase = 2 boxes of doughnuts + 3 boxes of chocolates

“The tax is $\frac{1}{10}$ of the total purchase”

translates to tax = total purchase \times 0.10

Total cost = total purchase + tax

Step 3

Substitute in the cost of each grocery purchase, and calculate the total purchase.

Total purchase = 2 boxes of doughnuts + 3 boxes of chocolates

$$= (2 \times 3.59) + (3 \times 5.99)$$

$$= 7.18 + 17.97$$

$$= 25.15$$

Step 4

Calculate the tax Mr. Pruden owes on the total purchase.

Multiply the total cost of the groceries by the tax.

$$\text{Tax} = \text{total purchase} \times 0.10$$

$$= 25.15 \times 0.10$$

$$= 2.515$$

Step 5

Add the tax to the total purchase cost to determine the total cost of the groceries, including tax.

$$\text{Total cost} = \text{total purchase} + \text{tax}$$

$$= 25.15 + 2.515$$

$$= 27.665$$

Step 6

Round the answer to the nearest hundredth.

$$27.665 = 27.67$$

The total cost of Mr. Pruden's groceries, including tax, is \$27.67.