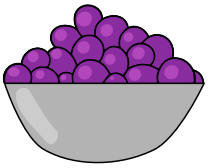

Problem of the Week
Problem C and Solution
A Grape Problem

Problem

There are several bowls containing various amounts of grapes on a table. When 12 of the bowls each had 8 more grapes added to them, the mean (average) number of grapes per bowl increased by 6. How many bowls of grapes are on the table?

Solution

Solution 1:

The mean number of grapes per bowl is equal to the total number of grapes divided by the number of bowls. So the mean number of grapes per bowl increases by 6 if the total number of grapes added divided by the number of bowls is equal to 6.

If 12 of the bowls each had 8 more grapes added to them, then the total number of grapes added is $12 \times 8 = 96$.

Thus, 96 divided by the number of bowls equals 6. Since $96 \div 16 = 6$, there are 16 bowls.

Solution 2:

This solution uses variables to represent the unknown values.

We are told that the mean number of grapes per bowl increased by 6. We can write this as follows.

$$\text{old mean} + 6 = \text{new mean}$$

The mean is equal to the total number of grapes divided by the number of bowls. Let b be the number of bowls. Let g be the total number of grapes that were *originally* in the bowls. If 12 of the bowls each had 8 more grapes added to them, then the total number of grapes added is $12 \times 8 = 96$. Now we can rewrite our equation above using variables.

$$\frac{g}{b} + 6 = \frac{g + 96}{b}$$

We can separate the fraction on the right side.

$$\frac{g}{b} + 6 = \frac{g}{b} + \frac{96}{b}$$

Now if we subtract $\frac{g}{b}$ from both sides of the equation, we are left with an equation that has only one variable. We can then solve this equation.

$$\begin{aligned} & 6 = \frac{96}{b} \\ \text{Multiply both sides by } b: \quad & 6b = 96 \\ \text{Divide both sides by 6:} \quad & b = \frac{96}{6} \\ & b = 16 \end{aligned}$$

Therefore, there are 16 bowls.