Conditions

There are 100 employees in a conference room in New York City. You note that 99% of them are managers. How many managers would need to leave the conference in order to reduce the percentage of managers in the hall to 98%

What is process to figure out this problem?

Solution

As we know, there are 100 employees, and this is 100% of all, who are in a conference room in New York City. Then the 1% of those is:

$$\frac{100}{100} = 1$$

One human is the 1% of all amount. That's why if we know, that 99% of them are managers, so there are 99 managers of 100 employees. Now, let's the amount of managers, who must leave the conference is x. Then the new amount of manager becomes 99-x and the new amount of all employees becomes 100-x. And now the rate of these amounts must be 98%. That's why:

$$\frac{99 - x}{100 - x} \cdot 100\% = 98\%$$

$$\frac{99 - x}{100 - x} = 0.98$$

$$99 - x = 0.98(100 - x) = 98 - 0.98x$$

$$0.02x = 1$$

$$x = 50$$

So, there must be 50 managers left the conference to reduce the percentage of managers in the hall to 98%.

Really, if 50 leaves, then 50 employees left, when 49 are managers. And

$$\frac{49}{50} \cdot 100\% = 98\%$$

Answer: 50 must leave.

We used our knowledge about fractions, proportions and %-relations to figure out this problem