

**Answer on Question #75937 – Math – Algebra
Question**

1. The annual bonus given to the employees of a company is 5% of their taxable incomes, after the state and central taxes are deducted. The state tax is 10% of taxable income. The central tax is 20% of taxable income after deducting the state tax. Formulate this situation for determining the bonus, as a linear system.

Solve by substitution, the system you have obtained in .

Solution

Let x be amount of taxable incomes, a be state tax, b be central tax, c be annual bonus, B be amount of annual bonus.

Then

$$B = c((x - ax) - b(x - ax)) = c((1 - a)x - b(1 - a)x) = c(1 - b)(1 - a)x,$$

where

ax is amount of state tax

$x - ax$ is taxable amount incomes after deducting the state tax

$b(x - ax)$ is amount of central tax

After substitution $c=0.05$ (5%), $a=0.1$ (10%), $b=0.2$ (20%), one gets

$$B = 0.05(1 - 0.2)(1 - 0.1)x = 0.036x$$

Answer: $0.036x$, where x is amount of taxable incomes.