Answer on Question #78723 – Math – Algebra

Question

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.

Solution

Including follow constants: $A = 0.05$ (5%), $B = 0.1$ (10%), $C = 0.2$ (20%). S is the amount of taxable income.

The state tax is $state = S \cdot B = 0.1B$.

Taxable income after deducting the state tax is $S(1 - B) = 0.9S$.

Central tax is $C \cdot S \cdot (1 - B) = 0.2 \cdot 0.9 \cdot S = 0.18S$.

Then $bonus = A(0.9S - 0.18S) = 0.05 \cdot 0.72S = 0.036S$.

Answer:

$bonus = 0.036S$, where S is the amount of taxable income.