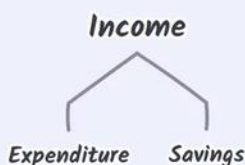


budgeting what comes in against what goes out, and the arithmetic of income tax

Income, expenditure and savings

- income is everything coming in, from salary, interest, rent or a business
- expenditure is everything going out, and it splits into essential items such as food and rent and optional ones
- savings is simply income minus expenditure, and it is the single relation the whole first half rests on
- a budget is a plan written in advance, setting expected income against planned expenditure
- a surplus means income exceeded expenditure, and a deficit means the reverse
- investment is savings put to work so that it earns further income, rather than merely being held

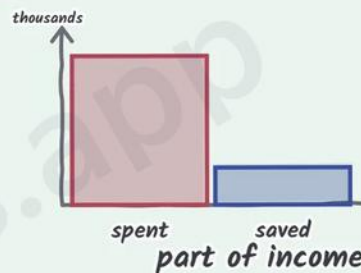


income splitting into the two things it can become: what is spent and what is kept. Nothing else is available, which is why savings is always the income less the expenditure and never anything more complicated

A budget question

Q. A person earns ₹45,000 a month and saves 20% of it. Find the monthly expenditure.

- savings are 20% of the income, not of anything else
- so the savings are $\frac{20}{100} \times 45000 = ₹9,000$
- expenditure is income minus savings
- so $E = 45000 - 9000 = ₹36,000$
- the same answer comes directly from the remaining 80%: $\frac{80}{100} \times 45000 = 36000$
- check that the two parts add back: $9000 + 36000 = 45,000$, the whole income



the income split into the part spent and the part saved, drawn to scale: the two bars together are the whole income, which is the check that finishes every budget question

Answer the monthly expenditure is ₹36,000

The relations used in the sums

the basic budget relation

$$S = I - E$$

savings as a percentage of income

$$\frac{S}{I} \times 100$$

expenditure when the savings rate is known

$$E = I \left(1 - \frac{r}{100} \right)$$

simple interest on a sum P

$$I = \frac{P \times R \times T}{100}$$

amount returned after that interest

$$A = P + I$$

every percentage in the first half is taken on the income unless the question says otherwise, so read carefully whether a figure is a percentage of income or of expenditure