

Transfers, complements and conserved totals

Use whole-part identities and conservation rules when items move or change status

• Complements and Transfers

01

Write the Whole-Part Identity

- Whole = selected + not selected; received applications = approved + not approved.
- If 25% are not approved, the approved share is $1 - 1/4 = 3/4$, given two exhaustive groups.
- For retail stores, Net Retained Units = Units Sold – Units Returned (e.g., $540 - 90 = 450$).



02

Internal Status Reassignment

- When non-purchasers become purchasers at the same centre, one part gains +x and the other loses –x.
- Approving 60 more out of 720 at Branch C shifts (540, 180) to (600, 120), giving ratio 5 : 1.
- At Centre D (400 purchasers, 400 non-purchasers), replacing 50 gives $450 : 350 = 9 : 7$.



03

Transfers Between Two Entities

- Transferring x units from X to Y changes them to (X – x) and (Y + x), keeping X + Y constant.
- Moving 60 sold units from T (720) to P (360) with returns fixed (120, 60) gives net $360 : 540 = 2 : 3$.
- Moving 40 customers from E (440) to A (210) gives revised counts A = 250, E = 400 (ratio 5 : 8).



04

Verify Which Column Stays Fixed

- Always check whether the change applies to the gross total, the approved part, or the returned part.
- Example: transfer 12 from B = 200 and add 8 to E = 125; new values are 188 and 133.
- After all updates, compare the required quantities: here, the difference is $188 - 133 = 55$.

REMEMBER In any transfer or status-shift problem, write down what is conserved before changing the parts.