Aptitude Assignment 4

1. A leak in the bottom of a tank can empty the full tank in 6 hours. An inlet pipe fills water at the rate of 4 litres per minute. When the tank is full, the inlet is opened, and due to the leak, the tank is empty in 8 hours. Find the capacity of the tank.
   ↳ 720 litres
2. Of the 1000 inhabitants in a town, 60% are males, 20% are literate. If 25% of all the inhabitants 25%, are literate, then what percentage of females are literate?
   ↳ 32.5% females are illiterate.
3. In an examination 80% candidates passed in English and 85% candidates passed in Mathematics. If 73% of candidates passed in both these subjects, what percent of candidates failed in both the subjects? → 35% of candidates failed in both subject.
4. The monthly income of a person is 13,500, and his monthly expenditure is 9,000. Next year's income increased by 14%, and his expenditure increased by 7%. Find percent increase in his savings is? → 28% increase in his saving
5. 49 pumps can empty a tank in 10 days, working 10 hours a day. if 70 pumps are used for 7 hours each day then in how many days the tank can be emptied?
   ↳ tank will be empty in 1 day

Q.1) Sol)

let capacity of tank is C litres.

rate of leakage = $\frac{C}{6}$ l/hr

rate of filling = 4 l/min = $1/15$ l/sec

rate at which tank being empty = $\left(\frac{C}{6} - \frac{1}{15}\right)$ l/hr.

So, a/c

$$\frac{C}{\left(\frac{C}{6} - \frac{1}{15}\right)} = 8$$

C = 720 litres. → ans

Q.2 Sol)

no. of males = $\frac{60}{100} \times 1000 = 600$

no. of females = $\frac{40}{100} \times 1000 = 400$

no. of literate people = $\frac{20}{100} \times 1000 = 200$

no. of literate males + females = $\frac{25}{100} \times 1000 = 250$ ... (1)

no. of literate mens = $\frac{20}{100} \times 600 = 120$

(1) 120 + literate females = 250

no. of literate females = 130

% of females literate = $\frac{130}{400} \times 100 = 32.5\%$

Q.3 Soln) Let assume total candidate appeared = 100

pass in english = 80% of 100 = 80
pass in maths = 85% of 100 = 85

73% passed in both eng & maths.
let x% candidate failed in both subjects.

Total = pass in eng + pass in maths + pass in both + failed in both

$100 = (80 - 73) + (85 - 73) + 73 + x$

$x = \underline{35}$ → ans.

Q.4) Soln) income / month = 13500 expenditure = 9000

Savings = 4500

next year, income ↑ by 14%

new income = 13500 + 14% of 13500 = 15390

expenditure ↑ by 7%
new exp = 9000 + 7% of 9000 = 9630

new monthy savings = 15390 − 9630 = 5760

∴ % ↑ in savings = $\frac{5760 - 4500}{4500} \times 100$

= 28% → ans

Q.5 (b) 49 pumps empty tank in 10 days, working 10 hrs / day.

total work = no. of pumps × time × efficiency.

efficiency 1 pump for 1 day = $49 \times 10 \times \frac{1}{490} = 1$ → any

1 day is required.