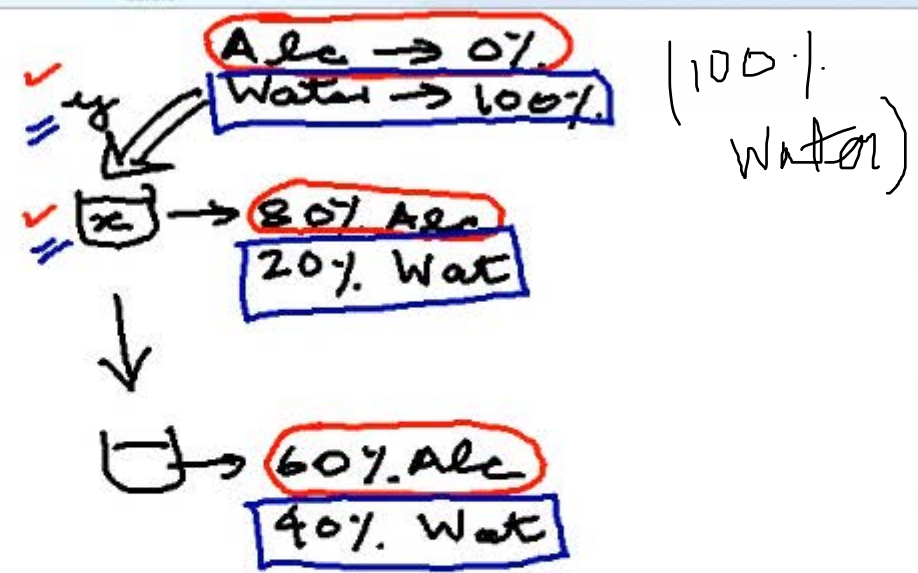
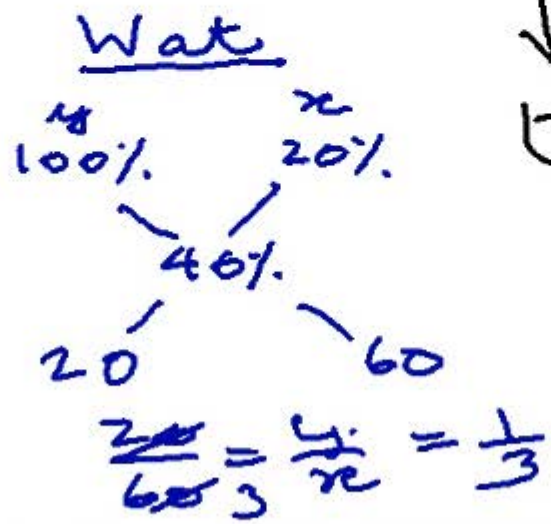
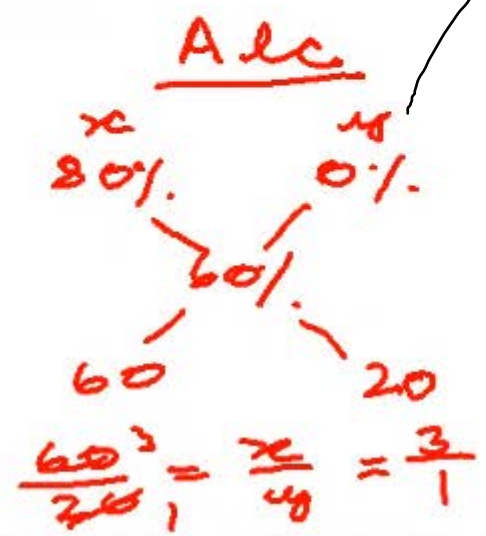


Find the ratio of water added to a 80% alcohol ~~soln~~ to create a 60% alcohol soln? *soln.*



$800/- \leftarrow 10 \text{ kgs @ } \text{Rs } 80/\text{kg}$ (1000)
 $400/- \leftarrow 4 \text{ kgs @ } \text{Rs } 100/\text{kg}$
 $1200/- \leftarrow 14 \text{ kgs}$

Min Ratio

$4:10 = 2:5$

Subject of trials \rightarrow Price/kg

$\frac{600}{7} = \frac{1200}{14} \text{ /kg} = \underline{\underline{84.40}}$
 $80 \xleftarrow{\text{AM.}} 60$

$\frac{x-80}{100-x} = \frac{2}{5}$
 $5x - 400 = 200 - 2x$
 $7x = 600 \text{ or } x = \frac{600}{7} = \underline{\underline{84.40}}$

$\frac{x}{100} = \frac{80}{100}$
 $\frac{x}{100} = \frac{80}{100}$
 $x = 80$
 $100 - x = 100 - 80 = 20$

Eq. Fl. remains true



P lit

⑩ Q lit $\rightarrow M = \frac{P-Q}{(P-Q)+Q} \times Q$

$M:W = (P-Q):Q$
 $= 3:2$

- 1) { a) all M X
 b) all W ✓

$\frac{3}{3+2} \times 10$

2) $M = \frac{Q(P-Q)}{P}$ X

2)

n times

Conc. of Milk in Dabba?

$\left(\frac{P-Q}{P}\right)^n$

Amt of Milk	Amt of Wt	Tot Vol	Conc
(P-Q)	Q	(P-Q)+Q = P	$\left(\frac{P-Q}{P}\right)^1$
$(P-Q) - \frac{Q(P-Q)}{P}$	X	P	$\frac{(P-Q)^2}{P}$
$\frac{P(P-Q) - Q(P-Q)}{P} = \frac{(P-Q)^2}{P}$			$= \left(\frac{P-Q}{P}\right)^2$



P lit



n times?

$$0.8 \left(\frac{P-Q}{P} \right)^n$$

Deloitte

- The average weight of a group of boys is 30 kg. After a boy of weight 35 kg joins the group, the average weight of the group goes up by 1 kg. Find the number of boys in the group originally.
(A) 5 (B) 4 (C) 6 (D) 7
- The average runs scored by a batsman in 20 matches is 40. In the next 10 matches, the batsman scored an average of 13 runs. Find his average score in all the 30 matches.
(A) 31 (B) 29 (C) 28 (D) 30
- The average mark of the students of a class in a particular exam is 80. If 5 students whose average mark in that exam is 40 are shifted to another class the average mark of the remaining would be 90. Find the number of students who wrote the exam.
(A) 20 (B) 25 (C) 30 (D) 35
- In an exam, the average mark of the students of a class was calculated as 20. But as the marks of two students were wrongly recorded as 70 and 85 instead of 60 and 77, the actual average would be 2 marks less. Find the number of students who wrote the exam.
(A) 11 (B) 12 (C) 9 (D) 10

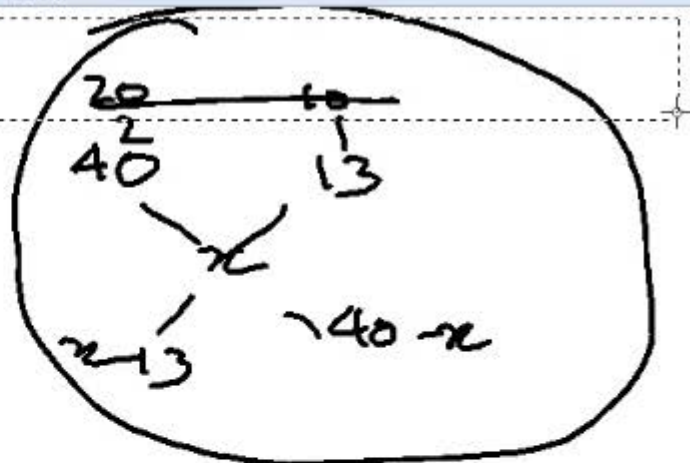


$$\frac{x-13}{40-x} = \frac{2}{1}$$

$$x-13 = 80-2x$$

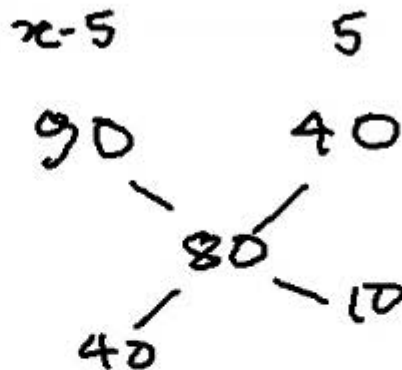
$$3x = 93$$

$$x = 31$$



Deloitte

- The average weight of a group of boys is 30 kg. After a boy of weight 35 kg joins the group, the average weight of the group goes up by 1 kg. Find the number of boys in the group originally.
(A) 5 ✓ (B) 4 (C) 6 (D) 7
- The average runs scored by a batsman in 20 matches is 40. In the next 10 matches, the batsman scored an average of 13 runs. Find his average score in all the 30 matches.
✓ (A) 31 (B) 29 (C) 28 (D) 30
- The average mark of the students of a class in a particular exam is 80. If 5 students whose average mark in that exam is 40 are shifted to another class the average mark of the remaining would be 90. Find the number of students who wrote the exam.
(A) 20 (B) 25 (C) 30 (D) 35
- In an exam, the average mark of the students of a class was calculated as 20. But as the marks of two students were wrongly recorded as 70 and 85 instead of 60 and 77, the actual average would be 2 marks less. Find the number of students who wrote the exam.
(A) 11 (B) 12 (C) 9 (D) 10



$$\frac{x-5}{5} = \frac{40}{10}$$

$$\text{or, } x-5 = 20$$

$$x = \underline{\underline{25}}$$

Deloitte

- The average weight of a group of boys is 30 kg. After a boy of weight 35 kg joins the group, the average weight of the group goes up by 1 kg. Find the number of boys in the group originally.
(A) 5 (B) 4 (C) 6 (D) 7
- The average runs scored by a batsman in 20 matches is 40. In the next 10 matches, the batsman scored an average of 13 runs. Find his average score in all the 30 matches.
(A) 31 (B) 29 (C) 28 (D) 30
- The average mark of the students of a class in a particular exam is 80. If 5 students whose average mark in that exam is 40 are shifted to another class the average mark of the remaining would be 90. Find the number of students who wrote the exam.
(A) 20 (B) 25 (C) 30 (D) 35
- In an exam, the average mark of the students of a class was calculated as 20. But as the marks of two students were wrongly recorded as 70 and 85 instead of 60 and 77, the actual average would be 2 marks less. Find the number of students who wrote the exam.
(A) 11 (B) 12 (C) 9 (D) 10

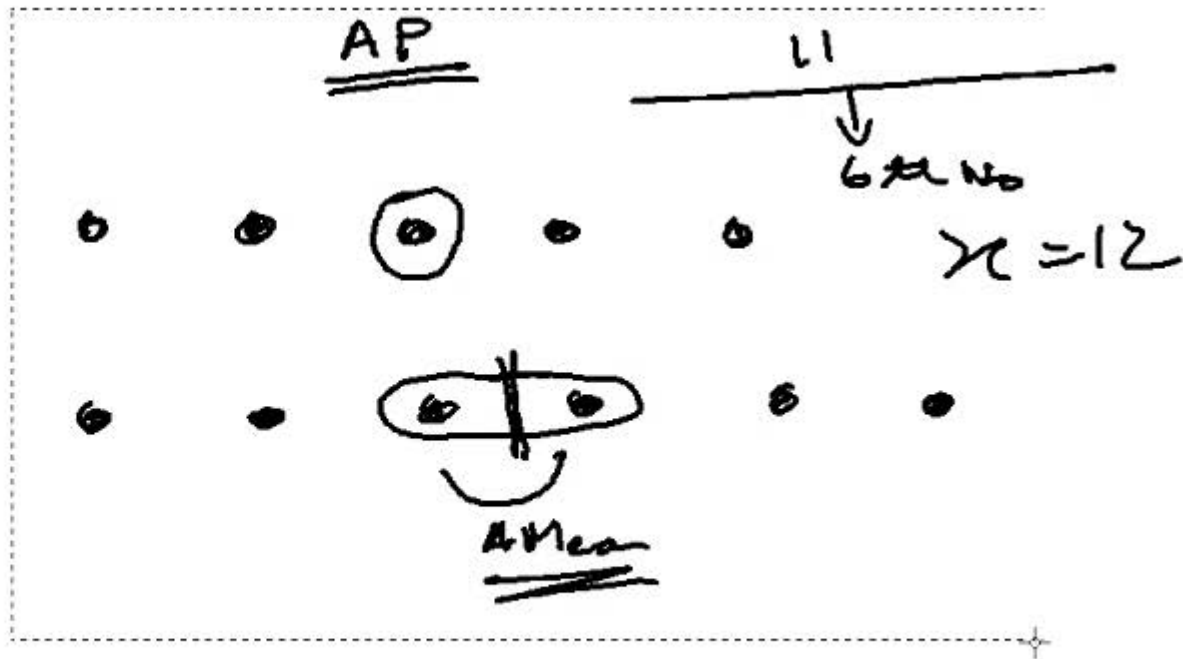
$$\begin{array}{r} \checkmark 70 \qquad 85 \checkmark \\ \checkmark - 60 \qquad - 77 \checkmark \\ \hline 10m + 8m \\ \hline = 18m \end{array}$$

$$\begin{array}{r} 2m \downarrow \\ \hline \hline \end{array}$$

9. ntud

- The average of 11 consecutive natural numbers is x . If the sixth number is 12, find x .
(A) 9 (B) 10
(C) 18 (D) None of these
- A group consists of 11 men. If two men whose ages are 29 and 31 are replaced by two other men named Amar and Bhavan, the average age of the group drops by one year. Find the average age of Amar and Bhavan (in years).
(A) 22.5 (B) 23.5 (C) 24.5 (D) 25.5
- Ajay has written a total of seven examinations in a sequence. He scored 90 marks in one exam and a total of 330 marks in the other six exams. If his average score in the first six exams is 60, find his score in the last exam.
(A) 35 marks (B) 60 marks
(C) 30 marks (D) 45 marks
- Two vessels P and Q contain 50% and 75% of alcohol respectively. If 2 litres from vessel P is mixed with 4 litres from vessel Q, the ratio of alcohol and water in the resulting mixture is
(A) 3 : 2 (B) 3 : 1 (C) 5 : 3 (D) 2 : 1

- The average of 11 consecutive natural numbers is x . If the sixth number is 12, find x .
 (A) 9 (B) 10
 (C) 18 (D) None of these
- A group consists of 11 men. If two men whose ages are 29 and 31 are replaced by two other men named Amar and Bhavan, the average age of the group drops by one year. Find the average age of Amar and Bhavan (in years).
 (A) 22.5 (B) 23.5 (C) 24.5 (D) 25.5
- Ajay has written a total of seven examinations in a sequence. He scored 90 marks in one exam and a total of 330 marks in the other six exams. If his average score in the first six exams is 60, find his score in the last exam.
 (A) 35 marks (B) 60 marks
 (C) 30 marks (D) 45 marks
- Two vessels P and Q contain 50% and 75% of alcohol respectively. If 2 litres from vessel P is mixed with 4 litres from vessel Q, the ratio of alcohol and water in the resulting mixture is
 (A) 3 : 2 (B) 3 : 1 (C) 5 : 3 (D) 2 : 1



- The average of 11 consecutive natural numbers is x . If the sixth number is 12, find x .

(A) 9 (B) 10
(C) 18 (D) None of these

- A group consists of 11 men. If two men whose ages are 29 and 31 are replaced by two other men named Amar and Bhavan, the average age of the group drops by one year. Find the average age of Amar and Bhavan (in years).

(A) 22.5 (B) 23.5 (C) 24.5 (D) 25.5

- Ajay has written a total of seven examinations in a sequence. He scored 90 marks in one exam and a total of 330 marks in the other six exams. If his average score in the first six exams is 60, find his score in the last exam.

(A) 35 marks (B) 60 marks
(C) 30 marks (D) 45 marks

- Two vessels P and Q contain 50% and 75% of alcohol respectively. If 2 litres from vessel P is mixed with 4 litres from vessel Q, the ratio of alcohol and water in the resulting mixture is

(A) 3 : 2 (B) 3 : 1 (C) 5 : 3 (D) 2 : 1

$$\begin{array}{r}
 11 \text{ men} \\
 \hline
 \times 29 \rightarrow \boxed{A} \\
 31 \rightarrow \boxed{B} \\
 \hline
 60 \text{ yrs} \\
 \hline
 \end{array}$$

1 avg ↓
Change of 11 yrs

$$60 - 11 = 49$$

$$\frac{49}{2} = \underline{\underline{24.5}}$$

- The average of 11 consecutive natural numbers is x . If the sixth number is 12, find x .
 (A) 9 (B) 10
 (C) 18 ☒ (D) None of these
- ✓ A group consists of 11 men. If two men whose ages are 29 and 31 are replaced by two other men named Amar and Bhavan, the average age of the group drops by one year. Find the average age of Amar and Bhavan (in years).
 (A) 22.5 (B) 23.5 ☒ (C) 24.5 (D) 25.5
- Ajay has written a total of seven examinations in a sequence. He scored 90 marks in one exam and a total of 330 marks in the other six exams. If his average score in the first six exams is 60, find his score in the last exam.
 (A) 35 marks ☒ (B) 60 marks
 (C) 30 marks (D) 45 marks
- Two vessels P and Q contain 50% and 75% of alcohol respectively. If 2 litres from vessel P is mixed with 4 litres from vessel Q, the ratio of alcohol and water in the resulting mixture is
 (A) 3 : 2 (B) 3 : 1 (C) 5 : 3 (D) 2 : 1

$$\begin{array}{r}
 90 \\
 330 \\
 \hline
 420 \\
 360 \\
 \hline
 60 \checkmark
 \end{array}$$

360

- The average of 11 consecutive natural numbers is x . If the sixth number is 12, find x .

(A) 9 (B) 10
(C) 18 (D) None of these

- A group consists of 11 men. If two men whose ages are 29 and 31 are replaced by two other men named Amar and Bhavan, the average age of the group drops by one year. Find the average age of Amar and Bhavan (in years).

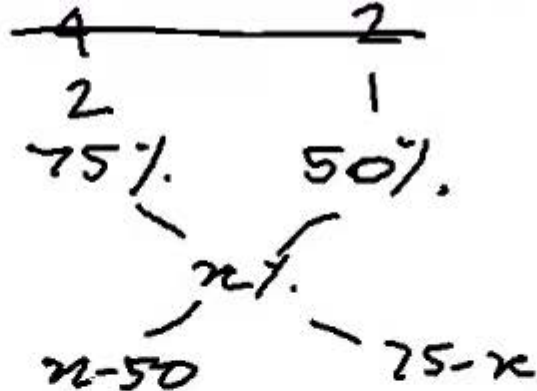
(A) 22.5 (B) 23.5 (C) 24.5 (D) 25.5

- Ajay has written a total of seven examinations in a sequence. He scored 90 marks in one exam and a total of 330 marks in the other six exams. If his average score in the first six exams is 60, find his score in the last exam.

(A) 35 marks (B) 60 marks
(C) 30 marks (D) 45 marks

- Two vessels P and Q contain 50% and 75% of alcohol respectively. If 2 litres from vessel P is mixed with 4 litres from vessel Q, the ratio of alcohol and water in the resulting mixture is

(A) 3 : 2 (B) 3 : 1 (C) 5 : 3 (D) 2 : 1



2 : 1

$$\frac{x-50}{75-x} = \frac{2}{1}$$

$$x-50 = 150-2x$$

$$3x = 200$$

$$x = \frac{200}{3}\% = \frac{2}{3}$$

- The students of section A and section B have average weights of 30 kg and 45 kg respectively. Find the average weight of both the sections together given that the students in the sections A and B are in the ratio 9 : 1.
(A) 34.5 kg (B) 33 kg (C) 31.5 kg (D) 36 kg
- In what ratio should water be mixed with 80% wine so that a 60% wine solution is formed?
(A) 7 : 6 (B) 2 : 3 (C) 5 : 4 (D) 1 : 3
- A mixture of 70 litres of milk and water contains 10% water. How many litres of water should be added to the mixture so that the resulting mixture contains $12\frac{1}{2}\%$ water?
(A) 2 (B) 3 (C) 4 (D) 5
- Two solutions A and B having 30% milk and 80% milk are mixed to form a mixture which contains 50% milk. Find the ratio of the quantities of A and B mixed.
(A) 4 : 1 (B) 3 : 5 (C) 5 : 2 (D) 3 : 2
- Two varieties of rice A and B priced at ₹6.75 per kg and ₹9.75 per kg respectively were mixed and sold at ₹10.80 per kg at a profit of 20%. Find the ratio in which A and B are mixed.
(A) 1 : 4 (B) 1 : 3 (C) 1 : 2 (D) 1 : 5

- The students of section A and section B have average weights of 30 kg and 45 kg respectively. Find the average weight of both the sections together given that the students in the sections A and B are in the ratio 9 : 1

(A) 34.5 kg (B) 33 kg (C) 31.5 kg (D) 36 kg

- In what ratio should water be mixed with 80% wine so that a 60% wine solution is formed?

(A) 7 : 6 (B) 2 : 3 (C) 5 : 4 (D) 1 : 3

- A mixture of 70 litres of milk and water contains 10% water. How many litres of water should be added to the mixture so that the resulting mixture contains $12\frac{1}{2}\%$ water?

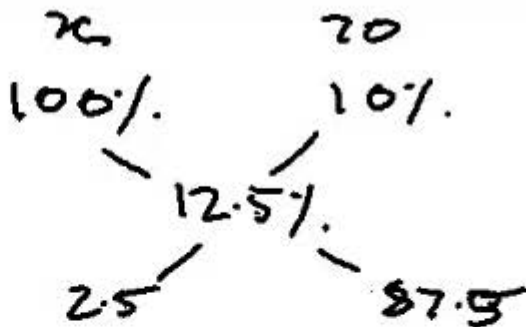
(A) 2 (B) 3 (C) 4 (D) 5

- Two solutions A and B having 30% milk and 80% milk are mixed to form a mixture which contains 50% milk. Find the ratio of the quantities of A and B mixed.

(A) 4 : 1 (B) 3 : 5 (C) 5 : 2 (D) 3 : 2

- Two varieties of rice A and B priced at ₹6.75 per kg and ₹9.75 per kg respectively were mixed and sold at ₹10.80 per kg at a profit of 20%. Find the ratio in which A and B are mixed.

(A) 1 : 4 (B) 1 : 3 (C) 1 : 2 (D) 1 : 5



$$\frac{2.5}{87.5} = \frac{x}{20} \Rightarrow x = 22$$

- The students of section A and section B have average weights of 30 kg and 45 kg respectively. Find the average weight of both the sections together given that the students in the sections A and B are in the ratio 9 : 1.

(A) 34.5 kg (B) 33 kg (C) 31.5 kg (D) 36 kg

- In what ratio should water be mixed with 80% wine so that a 60% wine solution is formed?

(A) 7 : 6 (B) 2 : 3 (C) 5 : 4 (D) 1 : 3

- A mixture of 70 litres of milk and water contains 10% water. How many litres of water should be added to the mixture so that the resulting mixture contains $12\frac{1}{2}\%$ water?

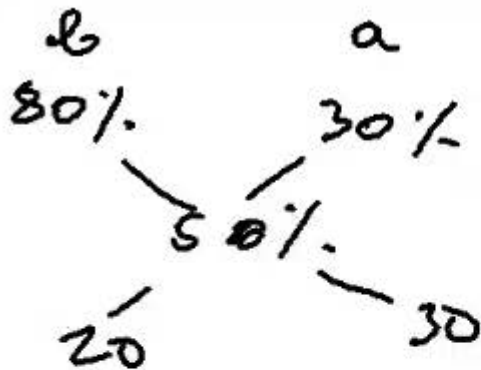
(A) 2 (B) 3 (C) 4 (D) 5

- Two solutions A and B having 30% milk and 80% milk are mixed to form a mixture which contains 50% milk. Find the ratio of the quantities of A and B mixed.

(A) 4 : 1 (B) 3 : 5 (C) 5 : 2 (D) 3 : 2

- Two varieties of rice A and B priced at ₹8.75 per kg and ₹9.75 per kg respectively were mixed and sold at ₹10.80 per kg at a profit of 20%. Find the ratio in which A and B are mixed.

(A) 1 : 4 (B) 1 : 3 (C) 1 : 2 (D) 1 : 5



$$\frac{20}{30} = \frac{B}{A}$$

$$A : B = 3 : 2$$

A : B

- The students of section A and section B have average weights of 30 kg and 45 kg respectively. Find the average weight of both the sections together given that the students in the sections A and B are in the ratio 9 : 1.
(A) 34.5 kg (B) 33 kg (C) 31.5 kg (D) 36 kg

- In what ratio should water be mixed with 80% wine so that a 60% wine solution is formed?
(A) 7 : 6 (B) 2 : 3 (C) 5 : 4 (D) 1 : 3

- A mixture of 70 litres of milk and water contains 10% water. How many litres of water should be added to the mixture so that the resulting mixture contains $12\frac{1}{2}\%$ water?
(A) 2 (B) 3 (C) 4 (D) 5

- Two solutions A and B having 30% milk and 80% milk are mixed to form a mixture which contains 50% milk. Find the ratio of the quantities of A and B mixed.
(A) 4 : 1 (B) 3 : 5 (C) 5 : 2 (D) 3 : 2

- Two varieties of rice A and B priced at ₹6.75 per kg and ₹9.75 per kg respectively were mixed and sold at ₹10.80 per kg at a profit of 20%. Find the ratio in which A and B are mixed.
(A) 1 : 4 (B) 1 : 3 (C) 1 : 2 (D) 1 : 5

$$SP = 10.80/\text{kg} \rightarrow 20\% \text{ Pr}$$

$$120\% \text{ of CP} = 10.80$$

$$100\% \text{ of CP} = \frac{10.80 \times 100}{120} = 9/\text{kg}$$

$$\begin{array}{cc} y & x \\ 9.75 & 6.75 \end{array}$$

$$\begin{array}{cc} & 9 \\ & / \quad \backslash \\ 2.25 & & 0.75 \end{array}$$

$$\frac{2.25}{0.75} = \frac{y}{x}$$

$$\underline{x : y = 1 : 3}$$

- In what ratio should a variety of rice costing ₹6 per kg be mixed with another variety of rice costing ₹8.75 per kg to obtain a mixture costing ₹7.50 per kg.
(A) 8 : 9 (B) 3 : 4 (C) 7 : 8 (D) 5 : 6
- The ace leg spinner Bhayanak Singh Bedi had 1200 runs taken of him in a certain number of matches. In the next match he took 4 wickets conceding 144 runs as a result of which his average (runs conceded / number of wickets taken) increased by 1. How many wickets did he take (in the matches considered) before the last match?
(A) 40 (B) 48 (C) 60 (D) 77
- The average marks obtained by 40 students of a class is 85. The difference between the marks obtained by the students who got the highest mark and the lowest mark is 108. If both these students are removed, the average falls by 1 mark. Find the highest mark.
(A) 144 (B) 158
(C) 172 (D) Cannot be determined

- In what ratio should a variety of rice costing ₹6 per kg be mixed with another variety of rice costing ₹8.75 per kg to obtain a mixture costing ₹7.50 per kg.
(A) 8 : 9 (B) 3 : 4 (C) 7 : 8 (D) 5 : 6

ITC The ace leg spinner Bhayanak Singh Bedi had 1200 runs taken of him in a certain number of matches. In the next match he took 4 wickets conceding 144 runs as a result of which his average (runs conceded / number of wickets taken) increased by 1. How many wickets did he take (in the matches considered) before the last match?

- (A) 40 (B) 48 (C) 60 (D) 77

Inf The average marks obtained by 40 students of a class is 85. The difference between the marks obtained by the students who got the highest mark and the lowest mark is 108. If both these students are removed, the average falls by 1 mark. Find the highest mark.

- (A) 144 (B) 158
(C) 172 (D) Cannot be determined

- In what ratio should a variety of rice costing ₹6 per kg be mixed with another variety of rice costing ₹8.75 per kg to obtain a mixture costing ₹7.50 per kg.

(A) 8 : 9 (B) 3 : 4 (C) 7 : 8 (D) 5 : 6

Imp.

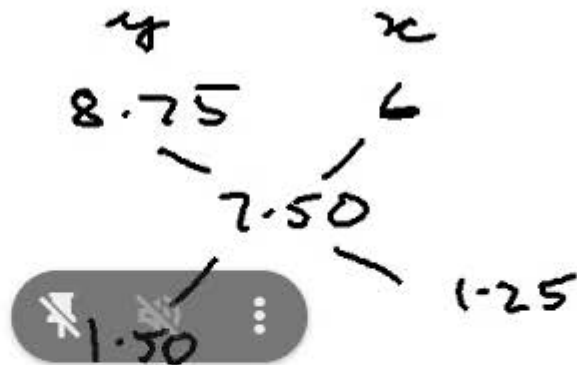
The ace leg spinner Bhayanak Singh Bedi had 1200 runs taken of him in a certain number of matches. In the next match he took 4 wickets conceding 144 runs as a result of which his average (runs conceded / number of wickets taken) increased by 1. How many wickets did he take (in the matches considered) before the last match?

(A) 40 (B) 48 (C) 60 (D) 77

Imp.

The average marks obtained by 40 students of a class is 85. The difference between the marks obtained by the students who got the highest mark and the lowest mark is 108. If both these students are removed, the average falls by 1 mark. Find the highest mark.

(A) 144 (B) 158
(C) 172 (D) Cannot be determined



$$\frac{1.50 \times 6}{1.25 \times 5} = \frac{y}{x}$$

$$\underline{x : y = 5 : 6}$$

No of matches con

1m

Total Runs :- 1200

Runs :- 144

Wkts :- 4

Total Wkts :- x

Avg :- $\frac{1200}{x}$

$$\frac{1200}{x} + 1 = \frac{1344}{x+4}$$

-80x -

$$\frac{1200+x}{x} = \frac{1344}{x+4}$$

Σ Runs :- 1344

Σ Wkts :- $(x+4)$

Avg :- $\frac{1344}{x+4}$

$$1344x = 1200x + x^2 + 4800 + 4$$

$$x^2 - 140x + 4800 = 0$$

$$x^2 - 80x - 60x + 4800 = 0$$

$$(x-60)(x-80) = 0$$

$$x = 60;$$

No of matches con

1m

Total Runs :- 1200

Total Wickets :- x

Avg :- $\frac{1200}{x}$

Runs :- 144

Wkts :- 4

$$\frac{1200}{x} + 1 = \frac{1344}{x+4}$$

$$-80x - 40$$

$$\frac{1200+x}{x} = \frac{1344}{x+4}$$

Σ Runs :- 1344

Σ Wkts :- $(x+4)$

Avg :- $\frac{1344}{x+4}$

$$1344x = 1200x + x^2 + 4800 + 4x$$

$$x^2 - 140x + 4800 = 0$$

$$x^2 - 80x - 60x + 4800 = 0$$

$$(x-60)(x-80) = 0$$

$x = 60; 80$

- In what ratio should a variety of rice costing ₹6 per kg be mixed with another variety of rice costing ₹8.75 per kg to obtain a mixture costing ₹7.50 per kg.

(A) 8 : 9 (B) 3 : 4 (C) 7 : 8 (D) 5 : 6

Ans

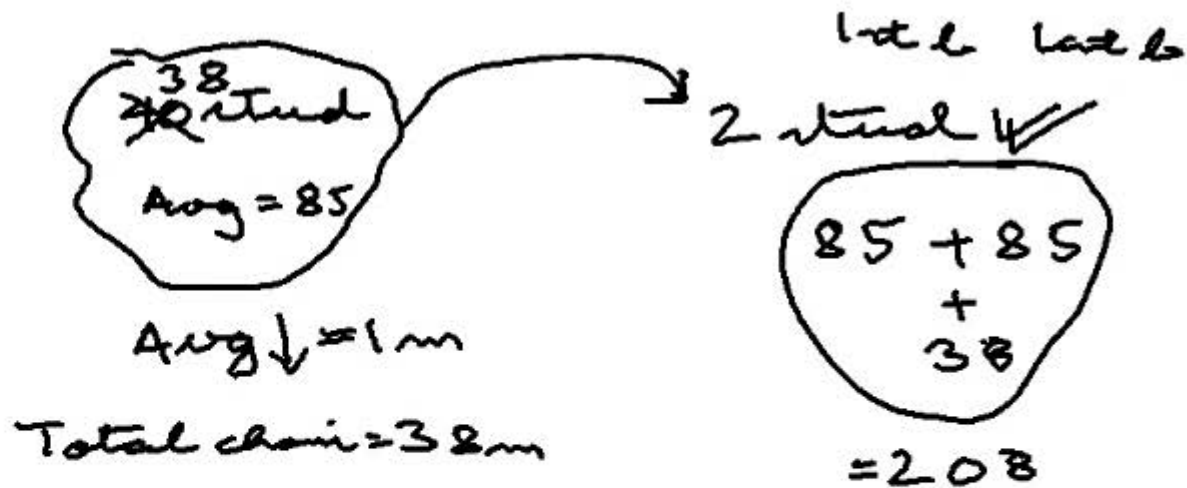
The ace leg spinner Bhayanak Singh Bedi had 1200 runs taken of him in a certain number of matches. In the next match he took 4 wickets conceding 144 runs as a result of which his average (runs conceded / number of wickets taken) increased by 1. How many wickets did he take (in the matches considered) before the last match?

(A) 40 (B) 48 (C) 60 (D) 77

Ans

The average marks obtained by 40 students of a class is 85. The difference between the marks obtained by the students who got the highest mark and the lowest mark is 108. If both these students are removed, the average falls by 1 mark. Find the highest mark.

(A) 144 (B) 158 (C) 172 (D) Cannot be determined



$$x + (x - 108) = 208$$

$$2x = 316$$

$$x = 158$$

- 1) Manoj scores 87 runs in his 17th inning, and as a result increased his batting average by 3. Find his average after 17 innings ?
- ✓ 2) The average marks of 55 students in an exam is 88. If the top 5 rankers are removed, the average drops by 5 marks. The 2nd highest marks < 136. If the marks of all the students are a) integral, and b) integral and distinct, find the least possible marks of the topper ?
- 3) The average marks got by 45 students is 80. The difference between the 1st and the last ranker is 99. If both of them are not considered in the total, the average falls by 1 mark. What marks did the 1st student get ?
- 4) A mixture of 70 lit of milk and water contains 10% water. How many lit of water should be added to the mixture so that it contains 12.5% water ?
- 5) 2 vessels contain mixtures of milk and water in the ratio of 4 : 9 and 2 : 7. In what ratio should the contents of the vessels be mixed so that the resultant mixture has a milk and water ratio of 2 : 5 ?
- 6) 68 lit of milk was added to a 3 : 7 milk and water solution. The resultant milk and water ratio is 7 : 5. What was the volume of the original solution ?
- 7) I purchase 3 kg of cake from Sugar & Spice at Rs 900. I sell $\frac{1}{3}$ rd of it at a profit of 30%, and the rest at a loss of 12%. What was my overall profit or loss % ?
- 8) A trader purchased 2 TVs for a total of Rs 35,000. He sold one at 30% profit and the other at 40% profit. His overall profit is 32%. What is the difference in the CP of the 2 TVs ?

$$16 + 1 = 17 \text{ m} \times 3 = \boxed{51 \text{ runs}}$$

$$\boxed{16 \text{ ins}} \quad \boxed{1 \text{ ins}} \checkmark$$

$$\text{Avg } 36$$

$$+ 3$$

$$\hline 39 \checkmark$$

$$\text{Runs} = 87 \text{ runs}$$

$$- 51$$

$$\hline 36$$

- ✓ 1) Manoj scores 87 runs in his 17th inning, and as a result increased his batting average by 3. Find his average after 17 innings?
- ✓ 2) The average marks of 55 students in an exam is 88. If the top 5 rankers are removed, the average drops by 5 marks. The 2nd highest marks < 136. If the marks of all the students are a) integral, and b) integral and distinct, find the least possible marks of the topper?
- 3) The average marks got by 45 students is 80. The difference between the 1st and the last ranker is 99. If both of them are not considered in the total, the average falls by 1 mark. What marks did the 1st student get?
- 4) A mixture of 70 lit of milk and water contains 10% water. How many lit of water should be added to the mixture so that it contains 12.5% water?
- 5) 2 vessels contain mixtures of milk and water in the ratio of 4 : 9 and 2 : 7. In what ratio should the contents of the vessels be mixed so that the resultant mixture has a milk and water ratio of 2 : 5?
- 6) 68 lit of milk was added to a 3 : 7 milk and water solution. The resultant milk and water ratio is 7 : 5. What was the volume of the original solution?
- 7) I purchase 3 kg of cake from Sugar & Spice at Rs 900. I sell $\frac{1}{3}$ rd of it at a profit of 30%, and the rest at a loss of 12%. What was my overall profit or loss %?
- ✓ 8) A trader purchased 2 TVs for a total of Rs 35,000. He sold one at 30% profit and the other at 40% profit. His overall profit is 32%. What is the difference in the CP of the 2 TVs?

average after 17 innings?

- ✓ 2) The average marks of 55 students in an exam is 88. If the top 5 rankers are removed, the average drops by 5 marks. The 2nd highest marks < 136. If the marks of all the students are a) integral, and b) integral and distinct, find the least possible marks of the topper?
- 3) The average marks got by 45 students is 80. The difference between the 1st and the last ranker is 99. If both of them are not considered in the total, the average falls by 1 mark. What marks did the 1st student get?
- 4) A mixture of 70 lit of milk and water contains 10% water. How many lit of water should be added to the mixture so that it contains 12.5% water?
- 5) 2 vessels contain mixtures of milk and water in the ratio of 4 : 9 and 2 : 7. In what ratio should the contents of the vessels be mixed so that the resultant mixture has a milk and water ratio of 2 : 5?
- 6) 68 lit of milk was added to a 3 : 7 milk and water solution. The resultant milk and water ratio is 7 : 5. What was the volume of the original solution?
- 7) I purchase 3 kg of cake from Sugar & Spice at Rs 900. I sell $\frac{1}{3}$ rd of it at a profit of 30%, and the rest at a loss of 12%. What was my overall profit or loss %?
- ✓ 8) A trader purchased 2 TVs for a total of Rs 35,000. He sold one at 30% profit and the other at 40% profit. His overall profit is 32%. What is the difference in the CP of the 2 TVs?

~~55 stud~~
Avg 88

Avg \downarrow 5m

Total = 250m

Top 5

$= 600 - 540$ Highest
 $= 150$

2nd R \rightarrow 135

3rd R \rightarrow 135

4th R \rightarrow 135

5th R \rightarrow 135

540

\downarrow 5 top
5 top

88×5
 $= 440m$
 $+ 250m$
690m

average after 17 innings?

- ✓ 2) The average marks of 55 students in an exam is 88. If the top 5 rankers are removed, the average drops by 5 marks. The 2nd highest marks < 136. If the marks of all the students are a) integral, and b) integral and distinct, find the least possible marks of the topper?
- 3) The average marks got by 45 students is 80. The difference between the 1st and the last ranker is 99. If both of them are not considered in the total, the average falls by 1 mark. What marks did the 1st student get?
- 4) A mixture of 70 lit of milk and water contains 10% water. How many lit of water should be added to the mixture so that it contains 12.5% water?
- 5) 2 vessels contain mixtures of milk and water in the ratio of 4 : 9 and 2 : 7. In what ratio should the contents of the vessels be mixed so that the resultant mixture has a milk and water ratio of 2 : 5?
- 6) 68 lit of milk was added to a 3 : 7 milk and water solution. The resultant milk and water ratio is 7 : 5. What was the volume of the original solution?
- 7) I purchase 3 kg of cake from Sugar & Spice at Rs 900. I sell $\frac{1}{3}$ rd of it at a profit of 30%, and the rest at a loss of 12%. What was my overall profit or loss %?
- ✓ 8) A trader purchased 2 TVs for a total of Rs 35,000. He sold one at 30% profit and the other at 40% profit. His overall profit is 32%. What is the difference in the CP of the 2 TVs?

~~56 stud~~
Avg 88

Avg \downarrow 5m

Total Clue = 250m

Top Min $690 - 534 = 156$
 $= 690 - 540 = 150$ Highest

2nd R	\rightarrow	135	135
3rd R	\rightarrow	135	134
4th R	\rightarrow	135	133
5th R	\rightarrow	135	132
		<u>540</u>	<u>534</u>

\downarrow 5 top
5 top
 88×5
 $= 440m$
 $+ 250m$
690m

50
~~5~~ stud
 Avg 88

Avg \downarrow 5m

5 top

$$88 \times 5 = 440m$$

$$+ 250m$$

Total Chair = 250m 690m

Top Man $690 - 534 = 156$

$= 690 - 540$ Highest
 $= 150$

2nd R \rightarrow 135 135

3rd R \rightarrow 135 134

4th R \rightarrow 135 133

5th R \rightarrow 135 132

540 534

✓ 1) Manoj scores 87 runs in his 17th inning, and as a result increased his batting average by 3. Find his average after 17 innings?

✓ 2) The average marks of 55 students in an exam is 88. If the top 5 rankers are removed, the average drops by 5 marks. The 2nd highest marks < 136. If the marks of all the students are a) integral, and b) integral and distinct, find the least possible marks of the topper?

3) The average marks got by 45 students is 80. The difference between the 1st and the last ranker is 99. If both of them are not considered in the total, the average falls by 1 mark. What marks did the 1st student get?

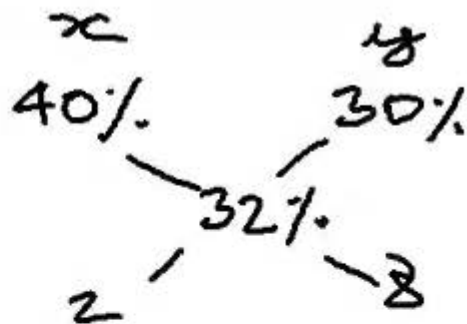
4) A mixture of 70 lit of milk and water contains 10% water. How many lit of water should be added to the mixture so that it contains 12.5% water?

5) 2 vessels contain mixtures of milk and water in the ratio of 4 : 9 and 2 : 7. In what ratio should the contents of the vessels be mixed so that the resultant mixture has a milk and water ratio of 2 : 5?

6) 68 lit of milk was added to a 3 : 7 milk and water solution. The resultant milk and water ratio is 7 : 5. What was the volume of the original solution?

7) I purchase 3 kg of cake from Sugar & Spice at Rs 900. I sell $\frac{1}{3}$ rd of it at a profit of 30%, and the rest at a loss of 12%. What was my overall profit or loss %?

✓ 8) A trader purchased 2 TVs for a total of Rs 35,000. He sold one at 30% profit and the other at 40% profit. His overall profit is 32%. What is the difference in the CP of the 2 TVs?



$$\frac{x}{y} = \frac{2}{8} = \frac{1}{4}$$

$$\frac{4-1}{4+1} \times 35000$$

Rs 21,000

9) Goods are purchased at Rs 450, and $\frac{1}{3}$ rd is sold at a loss of 10%. At what %age profit or loss should the remainder be sold so as to make an overall profit of 20% ?

✓ 10) Rs 6,000 is lent out in two parts, one @ 7% p.a. SI, and the other @ 10% p.a. SI. The total interest after 1 yr is Rs 450. What are the amounts lent ?

✱ 11) A person covers 800 km partly @ 50 km/hr and rest @ 150 km/hr in 10 hrs overall. What is the distance covered @ 150 km/hr ?

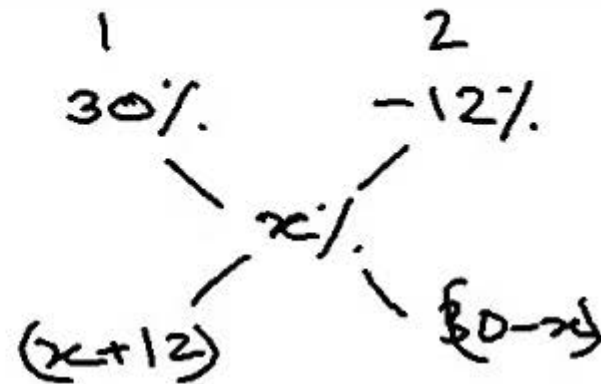
✓ 12) A total of 320 toffees were distributed among 120 boys and girls, so that each boy gets 2 and each girl 3 toffees. Find the no of boys and girls ?

• 13) 2 kinds of rice are mixed in the ratio of 2 : 3, and sold @ Rs 22/kg, resulting in 10% profit. If the CP of the 1st rice is Rs 14/kg, what is the CP/kg of the other ?

✓ 14) A vessel of capacity 90 lit is fully filled with pure milk. 9 lit is removed and replaced with water. This process is repeated another time. Find the quantity of pure milk left in the solution ?



- 1) Manoj scores 87 runs in his 17th inning, and as a result increased his batting average by 3. Find his average after 17 innings?
- 2) The average marks of 55 students in an exam is 88. If the top 5 rankers are removed, the average drops by 5 marks. The 2nd highest marks < 136. If the marks of all the students are a) integral, and b) integral and distinct, find the least possible marks of the topper?
- 3) The average marks got by 45 students is 80. The difference between the 1st and the last ranker is 99. If both of them are not considered in the total, the average falls by 1 mark. What marks did the 1st student get?
- 4) A mixture of 70 lit of milk and water contains 10% water. How many lit of water should be added to the mixture so that it contains 12.5% water?
- 5) 2 vessels contain mixtures of milk and water in the ratio of 4 : 9 and 2 : 7. In what ratio should the contents of the vessels be mixed so that the resultant mixture has a milk and water ratio of 2 : 5?
- 6) 68 lit of milk was added to a 3 : 7 milk and water solution. The resultant milk and water ratio is 7 : 5. What was the volume of the original solution?
- 7) I purchase 3 kg of cake from Sugar & Spice at Rs 900. I sell $\frac{1}{3}$ rd of it at a profit of 30%, and the rest at a loss of 12%. What was my overall profit or loss %?
- 8) A trader purchased 2 TVs for a total of Rs 35,000. He sold one at 30% profit and the other at 40% profit. His overall profit is 32%. What is the difference in the CP of the 2 TVs?



$$\frac{x+12}{30-x} = \frac{1}{2}$$

$$2x+24=30-x$$

$$3x=6 \quad x=2\%$$

- 1) Manoj scores 87 runs in his 17th inning, and as a result increased his batting average by 3. Find his average after 17 innings ?
- 2) The average marks of 55 students in an exam is 88. If the top 5 rankers are removed, the average drops by 5 marks. The 2nd highest marks < 136. If the marks of all the students are a) integral, and b) integral and distinct, find the least possible marks of the topper ?
- 3) The average marks got by 45 students is 80. The difference between the 1st and the last ranker is 99. If both of them are not considered in the total, the average falls by 1 mark. What marks did the 1st student get ?
- 4) A mixture of 70 lit of milk and water contains 10% water. How many lit of water should be added to the mixture so that it contains 12.5% water ?
- 5) 2 vessels contain mixtures of milk and water in the ratio of 4 : 9 and 2 : 7. In what ratio should the contents of the vessels be mixed so that the resultant mixture has a milk and water ratio of 2 : 5 ?
- 6) 68 lit of milk was added to a 3 : 7 milk and water solution. The resultant milk and water ratio is 7 : 5. What was the volume of the original solution ?
- 7) I purchase 3 kg of cake from Sugar & Spice at Rs 900. I sell $\frac{1}{3}$ rd of it at a profit of 30%, and the rest at a loss of 12%. What was my overall profit or loss % ?
- 8) A trader purchased 2 TVs for a total of Rs 35,000. He sold one at 30% profit and the other at 40% profit. His overall profit is 32%. What is the difference in the CP of the 2 TVs ?

68 x

1 $\frac{3}{10}$

$\frac{7}{12}$

$\frac{7}{12} - \frac{3}{10}$

$= \frac{17}{60}$

$1 - \frac{7}{12} = \frac{5}{12}$

$$\therefore \frac{12}{\cancel{60}_5} \times \frac{12}{5} = \frac{4}{x}$$
$$x = \underline{\underline{100\text{g}}}$$

- 1) Manoj scores 87 runs in his 17th inning, and as a result increased his batting average by 3. Find his average after 17 innings?
- 2) The average marks of 55 students in an exam is 88. If the top 5 rankers are removed, the average drops by 5 marks. The 2nd highest marks < 136. If the marks of all the students are a) integral, and b) integral and distinct, find the least possible marks of the topper?
- 3) The average marks got by 45 students is 80. The difference between the 1st and the last ranker is 99. If both of them are not considered in the total, the average falls by 1 mark. What marks did the 1st student get?
- 4) A mixture of 70 lit of milk and water contains 10% water. How many lit of water should be added to the mixture so that it contains 12.5% water?
- 5) 2 vessels contain mixtures of milk and water in the ratio of 4 : 9 and 2 : 7. In what ratio should the contents of the vessels be mixed so that the resultant mixture has a milk and water ratio of 2 : 5?
- 6) 68 lit of milk was added to a 3 : 7 milk and water solution. The resultant milk and water ratio is 7 : 5. What was the volume of the original solution?
- 7) I purchase 3 kg of cake from Sugar & Spice at Rs 900. I sell $\frac{1}{3}$ rd of it at a profit of 30%, and the rest at a loss of 12%. What was my overall profit or loss %?
- 8) A trader purchased 2 TVs for a total of Rs 35,000. He sold one at 30% profit and the other at 40% profit. His overall profit is 32%. What is the difference in the CP of the 2 TVs?

$$\begin{array}{c}
 x \quad y \\
 \frac{4}{13} \quad \frac{2}{9} \\
 \diagdown \quad \diagup \\
 \frac{2}{7} \\
 \diagup \quad \diagdown \\
 \frac{2}{7} - \frac{2}{9} \quad \frac{4}{13} - \frac{2}{7} = \frac{2}{91} \\
 = \frac{4}{63} \\
 \frac{\frac{4}{63} \times \frac{13}{2}}{9} = \frac{26}{9} = \underline{\underline{\frac{26}{9}}}
 \end{array}$$



- 1) Manoj scores 87 runs in his 17th inning, and as a result increased his batting average by 3. Find his average after 17 innings?
- 2) The average marks of 55 students in an exam is 88. If the top 5 rankers are removed, the average drops by 5 marks. The 2nd highest marks < 136. If the marks of all the students are a) integral, and b) integral and distinct, find the least possible marks of the topper?
- 3) The average marks got by 45 students is 80. The difference between the 1st and the last ranker is 99. If both of them are not considered in the total, the average falls by 1 mark. What marks did the 1st student get?
- 4) A mixture of 70 lit of milk and water contains 10% water. How many lit of water should be added to the mixture so that it contains 12.5% water?
- 5) 2 vessels contain mixtures of milk and water in the ratio of 4 : 9 and 2 : 7. In what ratio should the contents of the vessels be mixed so that the resultant mixture has a milk and water ratio of 2 : 5?
- 6) 68 lit of milk was added to a 3 : 7 milk and water solution. The resultant milk and water ratio is 7 : 5. What was the volume of the original solution?
- 7) I purchase 3 kg of cake from Sugar & Spice at Rs 900. I sell $\frac{1}{3}$ rd of it at a profit of 30%, and the rest at a loss of 12%. What was my overall profit or loss %?
- 8) A trader purchased 2 TVs for a total of Rs 35,000. He sold one at 30% profit and the other at 40% profit. His overall profit is 32%. What is the difference in the CP of the 2 TVs?

$$\begin{array}{l} \text{43} \\ \text{Student} \\ \text{80 avg} \end{array} \rightarrow \text{2nd} \checkmark$$

$$\begin{array}{r} 80 + 80 \\ + 43 \\ \hline = 203 \end{array}$$

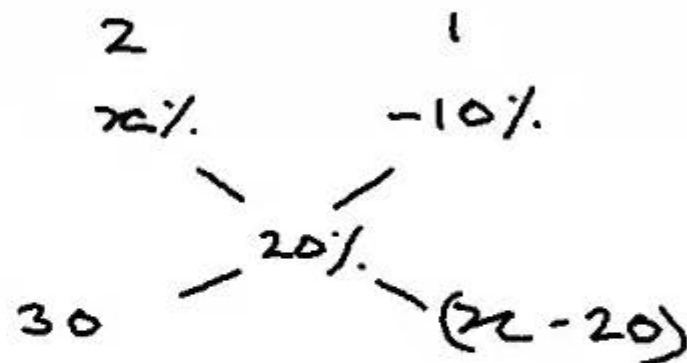
$$\text{Avg} \downarrow \rightarrow 1m$$

$$\text{Churi} \rightarrow 43 \times 1 = 43m$$

$$\begin{array}{r} \text{1st B} \rightarrow x \\ \text{2nd B} \rightarrow x - 99 \\ \hline 2x - 99 = 203 \\ 2x = 302 \\ x = 151 \end{array}$$



- 9) Goods are purchased at Rs 450, and $\frac{1}{3}$ rd is sold at a loss of 10%. At what %age profit or loss should the remainder be sold so as to make an overall profit of 20%?
- 10) Rs 6,000 is lent out in two parts, one @ 7% p.a. SI, and the other @ 10% p.a. SI. The total interest after 1 yr is Rs 450. What are the amounts lent?
- 11) A person covers 800 km partly @ 50 km/hr and rest @ 150 km/hr in 10 hrs overall. What is the distance covered @ 150 km/hr?
- 12) A total of 320 toffees were distributed among 120 boys and girls, so that each boy gets 2 and each girl 3 toffees. Find the no of boys and girls?
- 13) 2 kinds of rice are mixed in the ratio of 2 : 3, and sold @ Rs 22/kg, resulting in 10% profit. If the CP of the 1st rice is Rs 14/kg, what is the CP/kg of the other?
- 14) A vessel of capacity 90 lit is fully filled with pure milk. 9 lit is removed and replaced with water. This process is repeated another time. Find the quantity of pure milk left in the solution?



$$\frac{30}{x-20} = \frac{2}{1}$$

$$x-20=15$$

$$x = 35\% \uparrow$$

- 9) Goods are purchased at Rs 450, and $\frac{1}{3}$ rd is sold at a loss of 10%. At what %age profit or loss should the remainder be sold so as to make an overall profit of 20%?
- 10) Rs 6,000 is lent out in two parts, one @ 7% p.a. SI, and the other @ 10% p.a. SI. The total interest after 1 yr is Rs 450. What are the amounts lent?
- 11) A person covers 800 km partly @ 50 km/hr and rest @ 150 km/hr in 10 hrs overall. What is the distance covered @ 150 km/hr?
- 12) A total of 320 toffees were distributed among 120 boys and girls, so that each boy gets 2 and each girl 3 toffees. Find the no of boys and girls?
- 13) 2 kinds of rice are mixed in the ratio of 2 : 3, and sold @ Rs 22/kg, resulting in 10% profit. If the CP of the 1st rice is Rs 14/kg, what what is the CP/kg of the other?
- 14) A vessel of capacity 90 lit is fully filled with pure milk. 9 lit is removed and replaced with water. This process is repeated another time. Find the quantity of pure milk left in the solution?

$$\frac{\frac{1}{3} \times 450}{2} \times 100 = 7.5\%$$

$$\begin{array}{r} x \\ 10\% \quad \quad 4 \\ \quad \quad \quad 7\% \\ \quad \quad \quad \quad 7.5\% \\ \quad \quad \quad \quad \quad 0.5 \quad \quad 2.5 \end{array}$$

$$\frac{x}{10} = \frac{0.5}{2.5} = \frac{1}{5}$$

$$\begin{aligned} @ 7\% &\rightarrow \frac{1}{6} \times 6000 = 1000/- \\ @ 10\% &\rightarrow \frac{5}{6} \times 6000 = 5000/- \end{aligned}$$

- 9) Goods are purchased at Rs 450, and $\frac{1}{3}$ rd is sold at a loss of 10%. At what %age profit or loss should the remainder be sold so as to make an overall profit of 20%?
- 10) Rs 6,000 is lent out in two parts, one @ 7% p.a. SI, and the other @ 10% p.a. SI. The total interest after 1 yr is Rs 450. What are the amounts lent?
- 11) A person covers 800 km partly @ 50 km/hr and rest @ 150 km/hr in 10 hrs overall. What is the distance covered @ 150 km/hr?
- 12) A total of 320 toffees were distributed among 120 boys and girls, so that each boy gets 2 and each girl 3 toffees. Find the no of boys and girls?
- 13) 2 kinds of rice are mixed in the ratio of 2 : 3, and sold @ Rs 22/kg, resulting in 10% profit. If the CP of the 1st rice is Rs 14/kg, what is the CP/kg of the other?
- 14) A vessel of capacity 90 lit is fully filled with pure milk. 9 lit is removed and replaced with water. This process is repeated another time. Find the quantity of pure milk left in the solution?

$$\frac{15}{2} \times 100 = 7.5\%$$

$$\begin{array}{r} x \\ 10\% \\ \hline 0.5 \end{array} \quad \begin{array}{r} 48 \\ 7\% \\ \hline 2.5 \end{array}$$

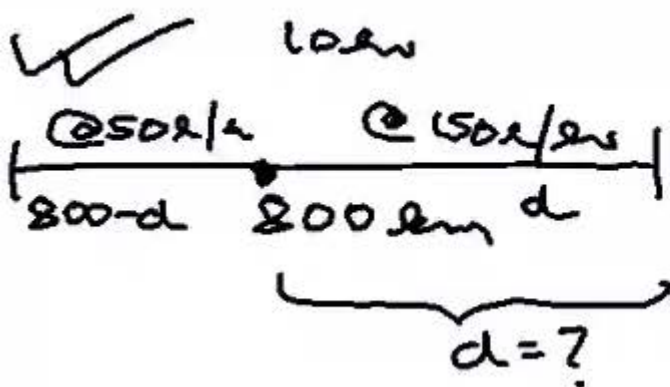
$$\frac{x}{y} = \frac{0.5}{2.5} = \frac{1}{5}$$

$$x : y = 1 : 5$$

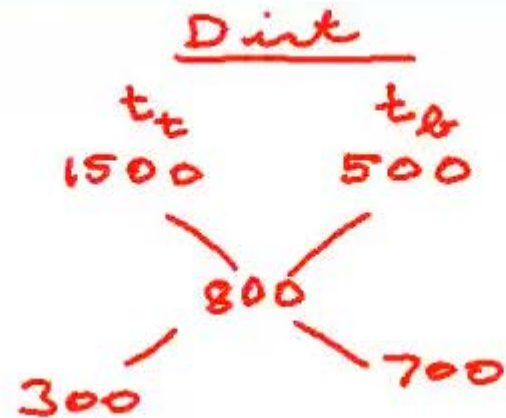
$$x + y = 6000$$

$$x = \frac{1}{1+5} \times 6000$$

$$\begin{aligned} &\text{@ } 10\% \rightarrow \frac{1}{6} \times 6000 = 1000/- \\ &\text{@ } 7\% \rightarrow \frac{5}{6} \times 6000 = 5000/- \end{aligned}$$



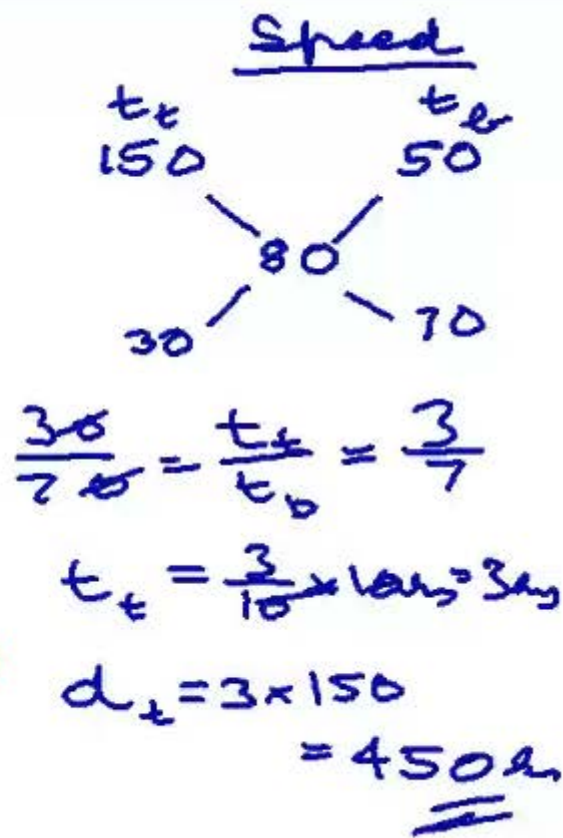
$$\frac{d}{150} + \frac{800-d}{50} = 10$$



$$\frac{300}{700} = \frac{t_t}{t_b} = \frac{3}{7}$$

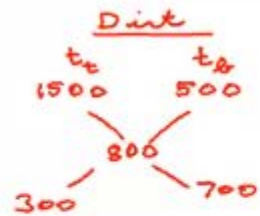
$$t_t = \frac{3}{3+7} \times 10 \text{ hr} = 3 \text{ hr}$$

$$d_t = 3 \times 150 = \underline{\underline{450 \text{ km}}}$$



$$\frac{d}{d} = ?$$

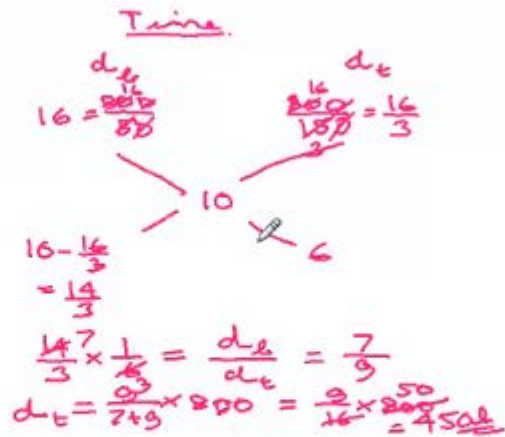
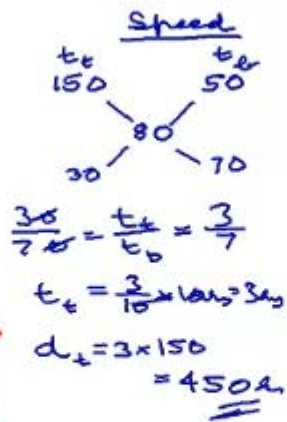
$$= 10$$



$$\frac{300}{700} = \frac{t_e}{t_b} = \frac{3}{7}$$

$$t_b = \frac{3}{3+7} \times 10 \text{ km} = 3 \text{ km}$$

$$d_b = 3 \times 150 = 450 \text{ km}$$



Total Dist

(500)

time

- 9) Goods are purchased at Rs 450, and $\frac{1}{3}$ rd is sold at a loss of 10%. At what %age profit or loss should the remainder be sold so as to make an overall profit of 20%?
- 10) Rs 6,000 is lent out in two parts, one @ 7% p.a. SI, and the other @ 10% p.a. SI. The total interest after 1 yr is Rs 450. What are the amounts lent?
- 11) A person covers 800 km partly @ 50 km/hr and rest @ 150 km/hr in 10 hrs overall. What is the distance covered @ 150 km/hr?
- 12) A total of 320 toffees were distributed among 120 boys and girls, so that each boy gets 2 and each girl 3 toffees. Find the no of boys and girls?
- 13) 2 kinds of rice are mixed in the ratio of 2 : 3, and sold @ Rs 22/kg, resulting in 10% profit. If the CP of the 1st rice is Rs 14/kg, what is the CP/kg of the other?
- 14) A vessel of capacity 90 lit is fully filled with pure milk. 9 lit is removed and replaced with water. This process is repeated another time. Find the quantity of pure milk left in the solution?

Conc of M

$$= 1 \left(\frac{90-9}{90} \right)^2$$

$$= \left(\frac{81}{90} \right)^2 = (0.9)^2 \\ = 0.81$$

$$\text{Quantity} = 90 \times 0.81 \\ = 72.9 \text{ L}$$