



Mixture

General problems:

- 100 kg of solution A is mixed with 60 kg of solution B. If solution A has tin and copper in the ratio 1 : 4 and solution B has lead and tin in the ratio 3 : 2, then what is the amount of tin in the new solution ? [UCBL (AO)-2018 (Written)] **Ans: 44 kg**
- A trader purchases blue paint and yellow paint at a price of Tk. 110 and Tk. 100 per liter respectively. He mixes blue and yellow paint at a ratio of 1 : 2 to make a certain paint of green color. He sells the green paint at a price of Tk. 120 per liter. If the trader makes a profit of Tk. 2000, how much yellow paint (in kgs) did he use in the mixture? [DBBL-(PO)-2017(Written)] **Ans: 80 liters.**
- A gasoline company wants to provide a customer with 1000 liters of premium gasoline Tk. 60 per liter by mixing X liter of regular gasoline costing Tk. 50 per liter, with Y liters of unleaded gasoline costing Tk.66 per liter. How much of each gasoline should be used to produce the mixture? [Mercantile Bank (PO)-2011- (Written)] **Ans: 375 liters & 625 liters.**
- A trader mixes 26 kg of rice priced at Tk. 20 per kg with 30 kg rice of another variety priced at Tk. 36 per kg and sells the mixture at Tk. 30 per kg. What is the percentage of profit or loss on this sale? [DBBL (PO)2012 (Written)] **Ans: 5%**

Ratio Related Mixture:

- Two equal glasses are respectively $\frac{1}{3}$ and $\frac{1}{4}$ full of milk. They are then filled up with water and the contents mixed in a tumbler. What is the ratio of milk and water in the tumbler? [Social Islami Bank (PO)-2013 (Written)] **Ans: 7:17**

Self Task:

- The ratio of milk and water in a mixture of 84 liters is 3 : 4. What will be the new ratio if 3 liters each of milk and water is added to the mixture?[Bangladesh Krishi Bank (SO) Examination -2011- (Written)] **Ans: 13:17**
- A drink contains 20% mango juice, 20% guava juice and 60% apple juice. You added 250ml of water to 750 ml of the drink. Now what will be the ratio of water to apple juice in the diluted drink? [Bapex- (AM)-2017-(Written)]+[Jamuna Bank Ltd.(MTO/PO)-2019] **Ans. 5:9**
- In a mixture 60 liters, the ratio of milk and water 2 : 1. If the ratio is to be 1 : 2, then estimate the quantity of water in liter to be further added in the mixture? [Standard Bank -(TAO-General)-2018] **Ans. 60 liters**

Self Task:

- The ratio of gold and silver in an ornament weighing 42 gram 4 : 3. How much gold will need to be added to make the ratio of gold and silver 5 : 3? [Janata, Sonali, Agrani Rupali Bank (SO) Examination -2008 (Written)] & [Bank Asia-2016-(written)] **Ans: 6 gm**

☐ Self Task:

10. In a solution of 16 kg the ratio of water to sugar is 3:1. How much more water must be added so that the ratio of water and sugar becomes 4:1 [IFIC Bank Ltd (PO)-2002(Written)]
Ans: 4 kg
11. In a mixture of three varieties of tea, the ratio of their weights is 4 : 5 : 8. If 5 kg tea of the first variety, 10 kg tea of the second variety and some quantity of tea of the third variety are added to the mixture, the ratio of the weights of three varieties of tea becomes as 5 : 7 : 9. In the final mixture, the quantity (in kg) of the third variety of tea was? [doubtnut.com /interviewmania.com]
Ans: 45
12. The ratio of milk and water in a mixture is 3:8. If we add x litre of milk to the mixture then ratio becomes 5:4 and now if we add 18 litre water to the mixture, then ratio become 4:5. Find the value of x [Brainly.in]
Ans: 28

☐ Self Task:

13. The ratio of milk and water in a mixture 3 : 8. If x litre milk is added to the mixture then ratio becomes 5 : 4 and 36 litres water is added to the mixture, then ratio becomes 4 : 5. Find the value of x?
Ans: 56

📁 Percentage related:

14. A solution made up of 40% alcohol by volume is mixed with 4 litre of solution that is 10% alcohol by volume. How much in litres of the 40% alcohol solution is needed to make a mixture that is 25% alcohol by volume.[Janata Bank (off-Cash)-2020(Written)]
Ans: 4 liters

☐ Self Task:

15. A scientist has 400 units of a 6% phosphoric acid solution and unlimited supply of 12% phosphoric acid. How many units of the latter must add to the former to produce a 10% phosphoric acid solution? [UCB Bank (PO): 2020]
Ans: 800 liters

☐ Self Task:

16. How many liters of 15% salt solution must be added to 5 liters of 8% salt solution to get a 10% salt solution? [Sonal Bank Ltd (SO-IT)-2016 (Written)]
Ans: 2 liters
17. A milk vendor has two cans of milk. The first contains 25% water and the rest milk. The second contains 50% water. How much milk should he mix from each of the container so as to get 12 liters of milk such that the ratio of water to milk is 3:5? [Sonal Bank Ltd (IT/ICT)-2019] + [Combined Two Bank (ICT/IT)-2019 (Written)]
Ans: 6 liters

📁 Mixture of different products:

18. A merchant has 1000 kg of sugar, part of which he sells at 8% profit and the rest at 18% profit. He gains 14% on the whole. The quantity sold at 18% profit is: [gmatclub.com]
Ans: 600kg

19. Sumon bought two varieties of rice, costing Tk. 8 per kg & Tk. per kg each and mixture them into some ratio. Then he sold the mixture at Tk. per kg, making a profit 20%? [Bangladesh Bridge Authority (AD): 2020 (Written)]
Ans: 1:1

□ Self Task:

20. Rahim bought 2 varieties of rice costing Tk. 5 and 6 per kg each. Then he sold the mixture at Tk. 7/kg, making profit of 20%. What was the ratio of the mixture? [Janata (EO)-2012, Rupali bank (SO)-2013, BB (AD)-2014-(Written)]
Ans: 1:5
21. Padma purchased 30kg of rice at the rate of Tk. 17.50 per kg and another 30 kg rice at a certain rate. He mixed the two and sold the entire quantity at the rate of Tk. 18.60 per kg and made 20% overall profit. At what price per kg did he purchase the lot of 30 kg rice? [Pubali (JO Cash)-2014(Written)]
Ans: Tk.13.5

□ Self Task:

22. In what ratio must a grocer mix two varieties of tea worth Tk. 60 a kg and Tk. 65 a kg. So that by selling the mixture at Tk. 68.20 a kg he may gain 10%? [examveda.com]
Ans: 3:2
23. Two metals A and B are 900% and 200% respectively heavier than water. If there two metals make an alloy which is 6 times heavier than water, what is the ratio of the two metals in the alloy? [Bank Asia (MTO)-2005-(Written)]
Ans: 4:3

📁 Mixture from two different vessels:

24. Coffee A normally cost 100 Taka per pound, It is mixed with coffee B, which normally cost 70 Taka per pound, to form a mixture which cost 80 Taka per pound. If there are 12 pounds of the mixture, how many pounds of coffee A are used in the mixture? [NCC Bank Ltd -2002 (Written)]
Ans: 4 pounds.
25. তিনটি সমান মাপের গ্লাসে শরবত পূর্ণ আছে। ঐ শরবতে পানি ও সিরাপের অনুপাত যথাক্রমে প্রথম গ্লাসে ৩:১, দ্বিতীয় গ্লাসে ৫:৩, তৃতীয় গ্লাসে ৯:৭। ঐ তিনটি গ্লাসের শরবত একটি বড় পাত্রে ঢালা হল। নতুন পাত্রে পানি ও সিরাপের অনুপাত কত হবে? [সপ্তম শ্রেণীর বোর্ড বই]
উত্তর: নতুন পাত্রে পানি ও সিরাপের অনুপাত = ৩১:১৭

□ Self Task:

26. Three containers have their volumes in the ratio 3:4:5. They are full of mixtures of milk and water. The mixture contain milk and water in the ratio of (4:1), (3:1) and (5:2) respectively. The contents of all these three containers are poured into a fourth container. The ratio of milk and water in the fourth container is? [examveda.com]
Ans: 157: 53 (Ans)

□ Self Task:

27. Equal quantities of three mixtures of milk and water are mixed in the ratio 1:2, 2:3 and 3:4. The ratio of water and milk in the mixture is? [sawaal.com]
Ans: 193:122
28. Three vessels whose capacities are in the ratio of 3 : 2 : 1 are completely filled with milk mixed with water. The ratio of milk and water in the mixture of vessels are 5 : 2, 4 : 1 and 4 : 1 respectively. Taking 1/3 of first, 1/2 of second and 1/7 of third mixture, a new mixture kept in a new vessel is prepared. The percentage of water in the new mixture is? [Janata Bank (AEO-Teller)-2020 (Written)]
Ans:24%

□ Self Task:

29. Three vessels having volumes in the ratio of 1 : 2 : 3 are full of a mixture of coke and soda. In the first vessel, ratio of coke and soda is 2 : 3, in second, 3 : 7 and in third, 1 : 4. If the liquid in all the three vessels were mixed in a bigger container, what is the resulting ratio of coke and soda? [brainly.com] **Ans: 4 : 11**

30. দুইটি বোতলে এসিড এবং পানির অনুপাত যথাক্রমে ২ : ৩ এবং ১ : ২। বোতল দুইটি থেকে ১ : ৩ অনুপাতে মিশ্রণ নিয়ে নতুন মিশ্রণ তৈরি করলে তাতে এসিড ও পানির অনুপাত কত হবে? [Bangladesh Bank (Off)-2019 (Written)] **উত্তর: ৭:১৩**

দুই উপরের প্রশ্নটা ঘুরিয়ে যদি এভাবে বলা হতো,

31. ২টি বোতলে এসিড ও পানির অনুপাত যথাক্রমে ২:৩ এবং ১:২। বোতল দুটি থেকে কি অনুপাতে মিশ্রণ নিয়ে নতুন অনুপাত তৈরি করলে তাতে এসিড ও পানির অনুপাত ৭:১৩ হবে? (এবার উত্তর আগের প্রশ্নে দেয়া ১:৩ হবে। এরকম প্রশ্নই নিচেরগুলো)

□ Self Task: (এটা একই নিয়মে, কিন্তু পরের দুটোতে পরিবর্তন আছে)

32. Two alloys A and B are composed of two basic elements. The ratios of the compositions of the two basic elements in the two alloys are 5:3 and 1:2. A new alloy X is formed by mixing the two alloys A & B in the ratio 4:3. What is the ratio of the composition of the two basic elements in alloy X? [BB- (AD)-2012-(Written)]

=1:1

33. In a mixture of milk and water, their ratio is 4:5 in the first container and the same mixture has 5:1 in the 2nd container. In what ratio should be extracted from each container and poured into the 3rd container, so that the ratio of milk and water comes to 5:4 in the 3rd container? [BSC-Combined exam-(SO-3Banks)-2018-(Written)]+ [Combined 5 Bank (AME-SO)-2019] **Ans: x:y = 5:2**

□ Self Task:

34. A mixture contain two liquid in the ratio of 2:3. And another mixture contain the same two liquid in the ratio of 5:4. Find the ratio in which the contents of both the vessels must be mixed to get a new mixture containing two liquid in the ratio equally? [Rupali Bank- (SO)-2019 (Written)] **Ans: x:y = 5:9**

📁 Replacement related:

Replacement অর্থ হলো পুনস্থাপন অর্থাৎ কোন জিনিস তুলে নিয়ে ঠিক সমপরিমাণ জিনিস মিশ্রিত করা।

35. A mixture of 120 liter milk and water contains 40% milk in it. If a certain portion was removed from the mixture and replaced with water then the new mixture have 10% milk in it. What is the value of remove part? [IFIC Bank (TSO)-2021 (Written)] **Ans: 70**

36. A container contains 40 liters of milk. From this container 4 liters of milk was taken out and replaced by water. This process was repeated further two times. How much milk is now contained by the container? [PKB-EO-(Cash)-2019-(Written)] **Ans: 29.16 litres.**

□ Self Task:

37. A container contains 50 litres of milk. From this container 5 litres of milk was taken out and replaced by water. This process was repeated further two times. How much milk is now contained by the container? [quora.com] **Ans: 36.45**

38. A pot contains 81 litres of pure milk. $\frac{1}{3}$ of the milk is replaced by the same amount of water. Again, $\frac{1}{3}$ of the mixture is replaced by that amount of water. Find the ratio of milk and water in the new mixture. [Sonal Bank- (SO-FF)-2019-(Written)] Ans: 4:5

39. A 20 litre mixture of milk and water contains milk and water in the ratio 3:2. 10 litres of the mixture is removed and replaced with pure milk and the operation is repeated once more. At the end of the two removal and replacement, what is the ratio of milk and water in the resultant mixture? [Dutch Bangla Bank Ltd. (PO) – 2016 (Written)]

Ans: The ratio of milk and water in the resultant mixture is 9:1

40. A vessel contains 28 liters of honey and water solution with honey and water ratio 4:3. 21 liters of honey-water solution is added to this that has honey to water ratio as 2:1, Again a 51 liters honey-water solution that has honey to water ratio as 9:8 is added to this. After this, 10 liters of the solution is replaced with pure honey. what ratio of water to honey in the final mixture? [Combined 4 banks (officer – cash)-2018 (Written)] Ans: 387:613

□Self Task:

41. A vessel contains a 32 litre solution of acid and water in which the ratio of acid and water is 5:3. If 12litres of the solution are taken out and 7.5litres of water are added to it, then what is the ratio of acid and water in the resulting solution Ans: = 5 : 6

42. A container contains milk and water in the ratio of 3:1. How much mixture should be taken out and replaced with milk so that the container contains milk and water in the ratio of 15:4? [BSC Combined SO (8 Banks & FIs)-2018 (Written)] Ans: $\frac{3}{19}$

43. A can contains a mixture of two liquids A and B in the ratio 7 : 5. When 9 liters of mixture are drawn off and the can is filled with B, the ratio of A and B becomes 7 : 9. How many liters of liquid A was contained by the can initially? [Combine 8 Bank(SO)-2019(Written)]+ [PKB-EO-(written)-2019] Ans: 21 liters

44. A jar contains 'x' liters of Milk, a seller withdraws 25 liter of it and sells it at Tk. 20 per liter. He then replaces it water. He repeated the process total three times. Every time while selling, He reduces selling price by Tk. 2. After this process Milk left in the mixture is only 108 liters so he decided to sell the entire Mixture at Tk. 15 per liter. Then how much profit did he earned if bought Milk at Tk. 20 per liter? [BSC Combined SO (8 Banks & FIs)-2018 (Written)] Ans: Tk.70

