STUDY CONTENTS THAT GET YOU SELECTED

5 LAKH+ STUDENTS
Already enrolled with our selection focused courses.

30+ EXPERT INSTRUCTORS
Our instructors are the best In the industry

10000+ HOURS OF VIDEOS
All videos are well-explained for you to get every bit out of the videos

FREE PDF

Mixture and Alligation PDF with detailed solutions

Mixture and Alligation questions are important type of questions asked in competitive exams. These questions carry a weightage of 1-2 questions (2-4 marks) in SSC exams and 1-2 questions in bank exams. To get a good rank in competitive exams, you have a good practice on the concepts of Mixture and Alligation as their concepts can be applied in other problems also.

Here are some tips for solving Mixture and Alligation questions: Understand and Practice Ratios, Clear the concept of Alligation and try using it in other arithmetic problems also, Practice a variety of questions.

So, we have attached 10 questions of Mixture and Alligation for you to practice with. You should aim to solve these questions in less than half a minute for each.

Practice Questions on Mixture and Alligation

You can also download the Mixture and Alligation questions and answers pdf. Just click on the **Download PDF** button. So let's start with the very first question.

Q:1 In a solution of alcohol and 180 ml of water, if the ratio of alcohol to water is 5 : 4, then what is the amount of alcohol present in the solution?
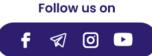
1. 120 ml

2. 90 ml

3. 100 ml

4. 80 ml

(**Difficulty:** 2, **Estimated Time:** 15 Seconds) This was an easy one. Did get it right?

Q:2 Two vessels having equal volume containing milk and water in the ratio 6 : 5 and 7 : 4. In what ratio they should be mixed such that the final mixture becomes 7 : 5.

1. 7 : 5

2. 5 : 7

3. 3 : 4

4. 4 : 5

(**Difficulty:** 3, **Estimated Time:** 20 Seconds) This was a simple one, don't get stuck in unnecessary calculations!

Q:3 In what ratio Rs 20/kg mixed with Rs 40/kg such that after selling it for Rs 42/kg, the shopkeeper gain 20%.

Follow us on

f ✈ ⌾ ▶

Address : 1997, Mukherjee Nagar, 110009
Email : online@kdcampus.org
Call : +91 95551 08888

Download the App

GET IT ON Google Play

Mixture and Alligation PDF with detailed solutions

1. 4 : 3

2. 2 : 3

3. 3 : 1

4. 1 : 3

(**Difficulty:** 2, **Estimated Time:** 15 Seconds) A question of seconds.....

Q:4 The ratio of milk and water in vessels A and B is 3 : 2 and 4 : 5. In what ratio the mixture of both vessels should be mixed such that vessel C contains half milk and half water?

1. 3 : 2

2. 4 : 5

3. 9 : 5

4. 5 : 9

(**Difficulty:** 3, **Estimated Time:** 20 Seconds) It is not an easy one but I think now you're prepared for it.

Q:5 The ratio of spirit and water in a mixture is 3 : 2. If the 12 liters of water is added to it, then the ratio of spirit and water becomes 1 : 2. Find the value of spirit in original mixture.
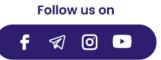
1. 8

2. 3

3. 9

4. 12

(**Difficulty:** 3, **Estimated Time:** 20 Seconds) We're halfway through. Have you got all your questions correct so far?

Q:6 In what ratio should 30% ethanol solution be mixed with another 50% ethanol solution to obtain a 38% ethanol solution?

1. 3 : 2

2. 5 : 2

3. 2 : 3

4. 3 : 4

(**Difficulty:** 2, **Estimated Time:** 15 Seconds) Should we raise the level of questions?

Mixture and Alligation PDF with detailed solutions

Q:7 A container contains a mixture of milk and water in the ratio 5 : 3. When 8 liters water is added to it and 8 litres mixture taken out, the ratio becomes 1 : 1. How many liters of milk were contained originally in the container?

1. 25 liters

2. 20 liters

3. 24 liters

4. 32 liters

(**Difficulty:** 3, **Estimated Time:** 20 Seconds) Try using short tricks to save time..

Q:8 An acid solution contains 24% of acid in water. If 'y' ml of pure water is added, its concentration reduces to 16%. Now if 'y' ml of acid containing 60% acid is added to the original acid solution, what will be the ratio of acid and water in the resulting mixture?

1. 3 : 4

2. 4 : 3

3. 9 : 16

4. 16 : 9

(**Difficulty:** 3, **Estimated Time:** 20 Seconds) This was a bit calculative one...

Q:9 A vessel contains milk and water of which 20% is water. 25 liters of the mixture was taken out and replaced by water and the ratio becomes 3 : 1. Find the initial quantity of milk in the vessel.

1. 240 litres

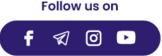**2.** 260 litres

3. 300 litres

4. 320 litres

(**Difficulty:** 3, **Estimated Time:** 20 Seconds) Try decreasing time in your calculations

Q:10 A jar contains a mixture of two liquids A and B in a ratio of 23 : 17. Another jar contains a mixture of the same liquids in a ratio of 11 : 9. A new mixture is formed by taking out some amount from both mixtures. Find the ratio of the amount taken out if the ratio of liquids in the new mixture is 17 : 13.

1. 4 : 1

2. 1 : 4

3. 1 : 2

4. 2 : 1

(**Difficulty:** 2, **Estimated Time:** 15 Seconds) Did you guess them all correctly?

Answer Key

Let's check out your score in this test.

1. (3)	**2.** (1)	**3.** (4)	**4.** (4)	**5.** (3)
6. (1)	**7.** (1)	**8.** (3)	**9.** (4)	**10.** (4)

Comment below your score, considering each question has 1 mark only. If you scored 8 to 10, congratulations! You are one step closer to selection. If you have scored 5 to 8 marks, then you are doing well, keep it up. If you have scored less than 5 marks then you need to work a little harder on this subject. But don't worry, we are here to help you master the subject.

Let's check the answers and solutions and try to find out what went wrong.

Answers and Solutions

Q:1 The correct answer is **option 3** i.e. **100 ml**

Let the quantity of alcohol and water be 5x and 4x respectively.

$\Rightarrow$ 5x + 4x = 180

$\Rightarrow$ 9x = 180

$\Rightarrow$ x = 20

$\Rightarrow$ 5(20) = 100 ml

Q:2 The correct answer is **option 1** i.e. **7 : 5.**

Given :

Ratio of milk in two vessels of equal volume is 6 : 5 and 7 : 4

Calculations :

STUDY CONTENTS THAT GET YOU SELECTED

5 LAKH+ STUDENTS
Already enrolled with our
selection focused courses.

30+ EXPERT INSTRUCTORS
Our instructors are the best
In the industry

10000+ HOURS OF VIDEOS
All videos are well-explained for you
to get every bit out of the videos

FREE PDF

Mixture and Alligation PDF with detailed solutions

Ratio of milk and water (vessel A) = 6 : 5.........(i)

Ratio of milk and water (vessel B) = 7 : 4..........(ii)

Both the vessels have same volume and mixed in ratio 7 : 5 so,

Multiply equation (i) with 7 and equation (ii) with 5 and add them

$\Rightarrow$ Milk : Water = (42 + 35) : (35 : 20)

$\Rightarrow$ 77 : 55

$\Rightarrow$ 7 : 5

Q:3 The correct answer is **option 4** i.e. **1 : 3**

Given :

Rs 20/kg mixed with Rs 40/kg

S.P = Rs 42/kg

Profit = 20%

Formula used :

Calculations :

$\Rightarrow$ 42 = CP(1 + (20/100))

$\Rightarrow$ 42 = CP(1 + 1/5)

$\Rightarrow$ 42 = CP(6/5)

$\Rightarrow$ CP = 35

Now using the alligation formula, we get

20   40

35

5   **15**

1   **:**   **3**

The final ratio = 5 : 15

⇒ 1 : 3

Q:4 The correct answer is **option 4** i.e. **5 : 9**

Given :

Ratio of milk and water in vessel A and B is 3 : 2 and 4 : 5

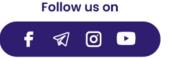**Formula used :**

Calculations :

Using the Alligation formula, we get

Ratio of milk and water in vessel C

$$\Rightarrow \frac{\frac{9-8}{18}}{\frac{6-5}{10}}$$

$$\Rightarrow \frac{10}{18}$$

⇒ 5 : 9

Mixture and Alligation PDF with detailed solutions

Q:5 The correct answer is **option 3** i.e. **9**

Given :

Spirit : water = 3 : 2

12 liters water added to make it 1 : 2

Calculations :

Let the value of milk and water be 3x and 2x, we get

$\Rightarrow \frac{3x}{2x+12} = \frac{1}{2}$

⇒ 6x = 2x + 12

⇒ 4x = 12

⇒ x = 3

The quantity of milk = 3x

⇒ 3 × 3

⇒ 9

Q:6 The correct answer is **option 1** i.e. **3 : 2**

Formula used :

Calculations :

Using Alligation formula as given

Ethanol concentration in one mixture is 30%

Ethanol concentration in second mixture is 50%

Mixture and Alligation PDF with detailed solutions

The ratio which both should be mixed

⇒ 3 : 2

Q:7 The correct answer is **option 1** i.e. **25 liters.**

Let the milk and water initially in the container be 5x and 3x.

When 8 liters of mixture taken out and ratio becomes,

Milk/Water = (5x - 5)/(3x - 3)

Now, (5x - 5)/(3x - 3 + 8) = 1/1

⇒ (5x - 5) = (3x + 5)

⇒ 5x - 3x = 5 + 5

⇒ 2x = 10

⇒ x = 5

Hence, quantity of milk initially is 5x = 5(5) = 25 liters

Q:8 The correct answer is **Option 3** i.e. **9 : 16**.

Let the volume of original solution be x

Final concentration of acid = Acid in original solution/(x + y) × 100

16 = 24/100 × x/(x + y) × 100

16 = 24x/(x + y)

16x + 16y = 24x

16y = 8x

x = 2y

Amount of acid in 24% acid of x ml = 24/100 × x = 0.24x

⇒ 0.48y [∵ x = 2y]

Amount of acid in 60% acid of y ml = 60/100 × y = 0.6y

Final amount of acid = 0.48y + 0.6y = 1.08y

Final amount of water = (x + y) − 1.08y

⇒ 3y − 1.08y = 1.92y

Ratio = 1.08y : 1.92y

⇒ 9 : 16

Q:9 The correct answer is **option 4** i.e. **320 liters.**

Given,

The mixture contains 20% of water

Ratio of milk and water = 80% : 20% = 4 : 1

Let the ratio of milk and water be 4x : x

According to question

(4x - 20)/(x - 5 + 25) = 3/1

⇒ (4x - 20)/(x + 20) = 3/1

⇒ 4x - 20 = 3x + 60

⇒ x = 80

∴ The initial quantity of milk = 4x = **320 liters**

Q:10 The correct answer is **Option 4** i.e. **2 : 1.**

⇒ A : B = 23 : 17 (mix 1)

⇒ A : B = 11 : 9 (mix 2)

⇒ A : B = 17 : 13 (new mix)

Let the volume of mix 1 = x

Amount of A = 23x/40

Amount of B = 17x/40

Let the volume of mix 2 = y

Amount of A = 11y/20

Amount of B = 9y/20

A/Q, [(23x/40) + (11y/20)]/[(17x/40) + (9y/20)] = 17/13

⇒ [23x + 22y]/[17x + 18y] = 17/13

⇒ 299x - 289x = 306y - 286y

⇒ 10x = 20y

⇒ x/y = 2/1

So, this is it for today. We will meet again with another new topic. Till then, you can practice the questions again by downloading the PDF of Mixtures and Alligations.