Mixed Maths Questions for SBI PO Pre, IBPS PO Pre, IBPS Clerk Mains and SBI Clerk Mains Exams.

Bank PO Maths Quiz 8

Direction: Study the following information carefully and answer the questions. [Set of 3 questions]

Two friends, Prakash and Prabhash invested some money in two different schemes in a bank. The rate of interest received by Prakash is 25% per annum simple interest and the rate of interest received by Prabhash is 20% per annum simple interest. At the end of two years, the amount received by Prakash is 150% of the amount received by Prabhash. If the sum of the total investments by Prakash and Prabhash is Rs. 84000.

1. What is the difference between the amount received by Prakash and that by Prabhash at the end of 2 years?

A. Rs. 22500   B. Rs. 14000   C. Rs. 24500   D. Rs. 28500   E. None of these

2. Suppose, Prakash and Prabhash had invested their respective principals calculated from the previous question at the respective compound interest rates of 25% per annum and 20% per annum compounded annually then what would have been the difference between the amount received by Prakash and the amount received by Prabhash at the end of two years?

A. Rs. 25125.5   B. Rs. 26262.5   C. Rs. 26162.5   D. Rs.25262.5   E. None of these

3. While referring to the respective principal amounts, calculated previously, for Prakash and Prabhash, suppose, Prakash and Prabhash interchange the schemes i.e. Prakash invests in the scheme of 20% per annum simple interest and Prabhash invests in the scheme of 25% per annum simple interest then at the end of two years, the amount received by Prabhash would be approximately how much percentage of the amount received by Prakash?

A. 75.24%   B. 102.21%   C. 104.28%   D. 76.53%   E. 106.87%

Direction: Study the following information carefully and answer the questions. [Set of 3 questions]

A fruit seller buys some number of mangoes at the rate of Rs. 5 per mango. On the first day, he sells 25% of the total number of mangoes at 60% profit. On the second day, he sells 1/3rd of what was left at the rate of 50% profit. On the third day, he sells 16.67% of what was left at the rate of 25% profit. On the fourth day, he sells 45 mangoes at no loss no profit. Since, the mangoes start spoiling, on the fifth days he throws 25% of the remaining mangoes and sells 48% of what was left at the loss of 10% again on the sixth day, he throws 45 mangoes and sells 50% of what was left at the rate of 40% loss. On the seventh day, he could not do business so he had to throws all the remaining mangoes. The total profit received by the fruit seller on the second day is Rs. 817.5.

4. What is the total number of mangoes, the fruit seller had in starting?

A. 1400   B. 1350   C. 1342   D. 1308   E. 1428

5. What is the approximate percentage of overall profit/loss made by the fruit seller while selling/ throwing all the mangoes?

A. 15.21%   B. 7.18%   C. 5.25%   D. 10.42%   E. 12.81%

6. What percentage of the total number of mangoes did the fruit seller throw? (approximately)

A. 21.24%   B. 14.28%   C. 16.41%   D. 20.62%   E. 18.73%

Direction: Study the following information carefully and answer the questions. [Set of 3 questions]

A group of some students which is less than 1000 decided to go for trekking and registered their name with Trek India company but on the last day only 500 students go for trekking and rest of the students refuse to go. It was the condition of Trek India company that if a student refuse to go on the last day then only 10% of the total ticket amount will be refunded and the price of one ticket is Rs. 150. The Trek India company's executive lost the data of the registered students so he asked the Group leaders, how many of the students refused to go on the last day, the group leader could not recall. However, he recalled that when he counted total number of registered students three at a time then one student was left, when counted five at a time then three students were left, when counted seven at a time then five were left, when he counted four at a time no student was left.

7. How much money the Trek India company should refund?

A. Rs. 1920   B. Rs. 1840   C. Rs. 1780   D. Rs. 1440   E. None of these

8. What is the total number of registered student with Trek India Company?

A. 824   B. 838   C. 943   D. 742   E. None of these

9. Suppose, 37.5% of the total number of students, who refused to go for trekking, change the plan and decided to go then The Trek India company also change the condition and decided to refund 12% of the total ticket amount instead of 10% of the total ticket amount. Now how much the Trek India company should refund?

A. Rs. 1660   B. Rs. 1440   C. Rs. 1420   D. Rs. 1620   E. Rs. 1620

10. In a rummy game, 3 cards are drawn from a pack of 52 cards. What is the probability that all the three cards are of red colour?

A. $\dfrac{3}{52}$ B. $\dfrac{3}{26}$3   C. $\dfrac{2}{17}$ D. $\dfrac{2}{13}$ E. None of these

Correct Answers:

1	2	3	4	5	6	7	8	9	10
C	C	D	D	B	E	A	E	B	C

Common Explanations: [Set 1]

Let Prakash invested Rs. x @ 25% per annum

And, Prabhash invested Rs. y @ 20% per annum

At the end of 2nd year, the total amount received by Prakash = 150% of x = 1.5x

And the total amount received by Prabhash = 140% of y = 1.4y

According to the question, 1.5x = 150% of 1.4y

By solving, 5x = 7y

x : y = 7 : 5

Again, according to the question, x + y = 84000

$$x = \frac{7 \times 84000}{12} = 49000$$

And $y = \frac{5 \times 84000}{12} = 35000$

Answers :

1.   The amount received by Prakash at the end of 2 years = 1.5x = 1.5 × 49000 = 73500
The amount received by Prabhash at the end of 2 years = 1.4y = 1.4 × 35000 = 49000
The required difference = 73500 – 49000 = 24500
Hence, option C is correct.

2.   The amount received by Prakash at the end of 2 years @ 25% per annum CI

$= 49000 \left(1 + \frac{25}{100}\right)^2 = 49000 \times \frac{25}{16} = 76562.5$

The amount received by Prabhash at the end of 2 years @ 20 per annum CI

$= 35000 \left(1 + \frac{20}{100}\right)^2 = 35000 \times \frac{36}{25} = 50400$

The required difference = 76562.5 – 50400 = Rs. 26162.5
Hence, option C is correct.

3. Prakash invest 49000 @ 20% per annum for 2 years at SI

Then the amount received by Prakash at the end of 2 years = 1.4 × 49000 = 68600

Prabhash invest 35000 @ 25% per annum for 2 years at SI

Then, the amount received by Prabhash at the end of 2 years = 1.5 × 35000 = 52500

The reqd. % = $\dfrac{52500 \times 100}{68600}$ = approximately 76.53%

Hence, option D is correct.

Common Explanations: [Set 2]

Let the total number of mangoes, the fruit seller had in starting = x

On the first day, he sold 25% of the total number of the mangoes then the remaining

= 75% of x = $\dfrac{3x}{4}$

On the second day, he sells 1/3rd of the what was left @ 50% profit

It means, 1/3rd of $\dfrac{3x}{4} = \dfrac{x}{4}$ mangoes

The cost price of $\dfrac{x}{4}$ mangoes = Rs. x × $\dfrac{5}{4}$

When it was sold at 50% profit then total profit would be

50% of $\dfrac{5x}{4} = \dfrac{5x}{8}$ = 817.5

By solving,

x = 817.5 × $\dfrac{8}{5}$ = 1308 = The total number of mangoes

Answers :

4. Following common explanation, we get

The total number of mangoes, the fruit seller had in starting is 1308

Hence, option D is correct.

5. Following common explanation, we get

Day 1, 25% of the total mangoes @ 60% profit 25% of 1308 @ 60% profit 327 mangoes @ 60% profit, Total SP

$= 327 \times 5 \times \dfrac{160}{100} = $ Rs. 2616

Remaining, 1308 – 327 = 981

Day2, 1/3 of 981 = 327 mangoes @ 50% profit,

Total SP $= 327 \times 5 \times \dfrac{150}{100} = $ Rs. 2452.5

Remaining 981 – 327 = 654

Day3, 16.67% of 654 $= \dfrac{654}{6}$

$= 109$ mangoes @ 25% profit, Total SP $= 109 \times 5 \times \dfrac{125}{100} = 681.25$

Remaining, 654 – 109 = 545
Day4, 45 mangoes at no loss no profit, Total SP = 45 × 5 = Rs. 225
Remaining, 545 – 45 = 500

Day5, 25% of 500 = 125 mangoes he throws

Then, the remaining mangoes = 500 – 125 = 375
Now he sells 48% of 375 = 180 mangoes @ 10% loss,

Total SP $= 180 \times 5 \times \dfrac{90}{100} = $ Rs. 810

Remaining, 375 – 180 = 195
Day6, he throws 45 mangoes and sells 50% of what was left at the rate of 40% loss.
The remaining number of mangoes after throwing 45, 195 – 45 = 150 mangoes
50% of 150 = 75 mangoes @ 40% loss

The Total SP $= 75 \times 5 \times \dfrac{60}{100} = $ Rs. 225

The remaining mangoes = 150 – 75 = 75
Day7, he could not do business so he had to throws all the remaining mangoes.
Total CP = 1308 × 5 = Rs. 6540
Total SP = 2616 + 2452.5 + 681.25 + 225 + 810 + 225 = Rs. 7009.75

The reqd. % $= \dfrac{(7009.75 - 6540) \times 100}{6540} = $ 7.18% approximately

Hence, option B is correct.

6. Following common explanation, we get

From the above solution, The total number of mangoes, The fruit seller throws = Day5 125 mangoes, Day6 45 mangoes, Day7 75 mangoes = 125 + 45 + 75 = 245

The reqd. % = $\dfrac{245 \times 100}{1308}$ = 18.73%

Hence, option E is correct.

Common Explanations: [Set 3]

Let the total number of students = P

Then, according to the question, when he counted total number of students three at a time then one student was left, when counted five at a time then three students were left, when counted seven at a time then five were left, when he counted four at a time no student was left

It means, when P is divided by 3 then our remainder is 1, when divided by 5 then our remainder is 3, when divided by 7 then our remainder is 5 but when divided by 4 then our remainder is 0

LCM of 3, 5, 7 = 105

Here, 3 − 1 = 2, 5 − 3 = 2, 7 − 5 = 2

It means 105 − 2 = 103 will give a remainder of 1, 3, and 5 respectively when divided by 3, 5, and 7 respectively

But according to the question P is exactly divisible by 4

Therefore, let the number is (105P − 2) which is exactly divisible by 4

The value of P can be 2, 6 ,10 and so on...

If we take P = 2 then total students = (105*2 − 2) = 208 [but as 500 students go for trekking the total students cannot be 208]

So, P = 2 is eliminated.

Now taking P = 6

The number of students = (105P − 2) = 628 which is less than 1000 and only one possible number between 0 and 1000.

The next possible value of P can be 10 but the number will become more than 1000

Therefore, the total number of students registered = 628

Answers :

7. Following common explanation, we get

The total number of students refused to go = 628 – 500 = 128

The total amount the trek India company will refund = 10% of 128 × 150 = 1920

Hence, option A is correct.

8. Following common explanation, we get

The total number of registered students = 628

Hence, option E is correct.

9. Following common explanation, we get

The total number of students who refused to go for trekking = 128

The total number of students who changed there mind = 37.5% of 128 = 48

The total number of students who still didn't go = 128 – 48 = 80

The trek India company should refund 12% of 80 × 150 = 1440

Hence, option B is correct.

10. The number of red cards = 26

The number of ways of selection 3 red cards out of 26 cards = $^{26}C_3$

$= \dfrac{24 \times 25 \times 26}{6} = 4 \times 25 \times 26$

The number of ways of selection 3 cards out of 52 cards = $^{52}C_3$

$= \dfrac{50 \times 51 \times 52}{6} = 50 \times 8.5 \times 52$

The reqd. probability $= \dfrac{4 \times 25 \times 26}{50 \times 8.5 \times 52} = \dfrac{2}{17}$

Hence, option C is correct.