# Maths Questions for RBI Grade B Phase - 1 Exam.

## RBI Grade B Maths Quiz 4

Directions: Kindly study the following Questions carefully and choose the right answer:

**1. The road viz. NH-1 and NH-2 connecting two towns, A Kashmir Valley and B Leh, goes only uphill or downhill, i.e., there is no stretch of road that is level. Virat's car goes at a constant speed of 40 km/hr uphill and 80 km/hr downhill. What is the distance between Kashmir Valley and Leh, if it takes exactly 9 hours for Virat to make one round trip from Kashmir Valley and Leh and back?**

A. 240 km B. 180 km C. 150 km D. 120 km E. None of these

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**2. Raghuram Rajan deposited Rs.20000 on 1st January 2017 to open a savings account. He withdrew Rs. 1,000 on the 10th of every month. He closed the account on 6th June 2017. If the bank pays interest at 4% p.a., then approximately how much interest did he receive on closing the account?**

A. Rs. 251 B. Rs. 154 C. Rs. 294 D. Rs. 362 E. Rs. 452

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**3. Aman borrowed a sum of money from Rohan at 10% rate per annum for 4 years at simple interest. Due to some reason Aman was unable to pay that amount in that period. Due to this Rohan took simple interest for that stipulated period (for 4 years) and after that the interest was compounded annually at same rate from the next year. The sum of money was returned after 7 years. As a result, Aman has to pay 3268 more to Rohan. Find the sum of money borrowed by Aman?**

A. 32680 B. 24000 C. 16340 D. 20000 E. None of these

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**4. Jethalal and Tarak Mehta have two spools of 'Dhaga' (a specially prepared thread) to fly their kites. Each of the Dhagas has tiny knots at regular intervals, which helps in keeping track of the length of the Dhaga that is used. Each of the persons has the same length of Dhaga. While Jethalal'sDhaga has knots at intervals of 10 feet, Tarak Mehta's Dhaga has knots at intervals of 12 feet. Also, Tarak Mehta's Dhaga has exactly 10 knots less than that of Jethalal. If each of the Dhagas starts and ends with a knot, find the length (in feet) of the Dhaga with either of them.**

A. 500 B. 600 C. 520 D. 150 E. 450

**5. Prem Kumar had some currency notes of denominations Rs.50, Rs.20 and Rs.10, such that at least two notes of each denomination were present with him He had to pay a bill of Rs.200 in Big Bazaar and when he counted all the money he had, he realized that he was short of Rs.30. How many notes did Prem Kumar have?**

A. 7 B. 8 C. 9 D. 10 E. 11

**6. In a bag there are a total of 150 coins in three denominations Rs.1, Rs.2 and Rs.5 with at least one coin of each denomination being present in the bag. The total value of the Re.1 coins is at least 50% of the total value of the coins in the bag. If there are 23 Rs.5 coins in the bag and the total value of the Rs.2 coins is at least 3% of the total value of the coins in the bag, find the number of Rs.2 coins in the bag**

A. 4 B. 5 C. 10 D. 12 E. 8

**7. The cost prices of three sports items, Ball Jacket, Bat Socks and Thigh Pad Shoes, are in the ratio 2 : 3 : 4 respectively. If these three items are sold such that a profit of 20% is registered on Jacket, a profit of 25% is registered on Socks and a loss of 10% is incurred on Shoes, then which of the following gives the overall percentage of profit/loss made in the three transactions put together?**

A. 8.33% Profit B. 10.33% loss C. 11.25% Profit D. 15.40% Profit E. None of these

**8. A Half Marathon run is organized by an NGO to spread awareness about the benefits of sustainable environment for Swatch Bharat Abhiyaan. A runner has to run on a road having three stretches a, b, c. Virat covers a at a speed of 10 kmph, b at 12 kmph, and c at 15 kmph. While returning, he covers c at 10 kmph, b at 12 kmph and a at 15 kmph. He takes a total of 10 hours for the onward run and 8 hours for the return run. What is the length of the road?**

A. 44 km B. 95 km C. 108 km D. 121 km E. Can't be determined

**9. In a certain exam, 4 marks were awarded for each correct answer, -1 marks for each incorrect answer and no marks were awarded for the questions left unattempt. If Hari got a net score of 124 in the exam, which of the following could be the number of questions he attempted?**

A. 40 B. 42 C. 43 D. 44 E. None of these

**10. Arjun has 13 boxes of chocolates with him, with an average of 17 chocolates per box. If each box has at least 11 chocolates and no two boxes have equal number of chocolates, then what can be the maximum possible number of chocolates in any box?**

A. 23 B. 25 C. 29 D. Can't be determined
E. None of these

**Correct Answers:**

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

**Explanations:**

**1.** Let the road from Kashmir Valley to Leh be downhill for a distance of x km, and uphill for a distance of (S – x) km. (Where S = distance between the two towns).

Now, on the return journey (S – x) km will be downhill and x km will be uphill.

Hence total distance downhill = x + (S – x) = S

And total distance uphill = (S – x) + x = S

Hence, total time = $\frac{S}{40} + \frac{S}{80}$ = 9 hour (Given)

$\Rightarrow (2 \times S + S) = (80 \times 9)$

$\Rightarrow 3 \times S = (80 \times 9)$

$\Rightarrow S = \left(80 \times \frac{9}{3}\right) = 240$

Thus, the distance between Kashmir Valley and Leh = 240 km

Hence, option (A) is correct.

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**2.** The interest I on principle P for D days at R% p.a. is given as

$I = P \times D \times \frac{2R}{73000}$

From 1st January to 9th January,

P = Rs.20000, D = 9 and R = 4% p.a.

Therefore, interest, $I1 = \frac{20000 \times 9 \times 8}{73000} = \frac{1440000}{73000}$ = Rs. 19.73

From 10th January to 9th February,

P = Rs.19000, D = 31 and R = 4% p.a.

Therefore, interest, $I2 = \frac{19000 \times 31 \times 8}{73000} = \frac{4712000}{73000}$ = Rs. 64.55

From 10th February to 9th March,

P = Rs.18000, D = 28 and R 4% p.a.

Therefore, interest, $I3 = \frac{18000 \times 28 \times 8}{73000} = \frac{4032000}{73000}$ = Rs. 55.23

From 10th March to 9th April,
P = Rs.17000, D = 31 and R = 4%p.a

Therefore, interest, I4 = $\frac{17000 \times 31 \times 8}{73000} = \frac{4216000}{73000}$ = Rs. 57.75

From 10th April to 9th May,

P = Rs.16000, D = 30 and R = 4% P.a.

Therefore, interest, I5 = $\frac{16000 \times 30 \times 8}{73000} = \frac{3840000}{73000}$ = Rs. 52.60

From 10th May to 6th June,
P = Rs.15000, D = 27 and R = 4% p.a.
The days are 27 as on the day of closing he will not get the interest. So 22 days of May and 5 days of June will be counted.

Therefore, interest, I6 = $\frac{15000 \times 27 \times 8}{73000} = \frac{3240000}{73000}$ = Rs. 44.38

Total Interest- = I1 + I2 + I3 + I4 + I5 + I6 = 19.73 + 64.55 + 55.23+ 57.75 + 52.60 + 44.38
= Rs.294.24 = Rs.294 approximately
Hence, option (C) is correct.

**3.** Let money borrowed by Aman is x.
If Rohan didn't apply compound interest, amount payable by Aman after 7 years is.

$\therefore x + \frac{x \times 7 \times 10}{100} = \frac{17x}{10}$

Now Rohan applied SI for first 4 years and for remaining 3 years CI is applicable, then amount payable by Aman is.
For first 4 years.

$\therefore x + \frac{x \times 4 \times 10}{100} = \frac{14x}{10}$

For next 3 year CI is payable

$\therefore \frac{14x}{10}\left(1 + \frac{10}{100}\right)^3 = \frac{18634x}{10000}$

Now Aman has to pay 3268 more.

$\therefore \frac{18634x}{10000} - \frac{17x}{10} = 3268$

$\therefore \frac{1634x}{10000} = 3268$

$\therefore x = 20000$
Hence, option D is correct.

**4.** Let Jethalal make n knots. Tarak Mehta makes (n – 10) knots. Since both the Dhagas start and end with a knot, the length of the Dhaga L given by

L = 10(n – 1) =12 (n – 11)
⇒ n = 61 and L = 600
Hence, option (B) is correct.

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**5.** Let the number or notes of denominations Rs.50, Rs.20 and Rs.10
with Prem Kumar be x, y and z respectively.
Total money with Prem Kumar = (200 – 30) = 170
(50x + 20y +10z) = 170.
Since x, y, z > 1, x cannot be 3 therefore x = 2.
When x = 2, y can be only 2 otherwise if y = 3, then x Will be equal to 1, which is not possible.
Therefore x = 2, y = 2 and z = 3.
The total number of notes with Prem Kumar is 7.
Alternative Solution:
We can directly start with two notes of each denomination, which gives us 100 + 40 + 20 = Rs.160. Now, the only possibility of
having exactly Rs.170 is to have just one additional note of Rs.10.
Hence, 7 notes.
Therefore, option (A) is correct.

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**6.** Let the number of Rs1 coins, Rs.2 coins and Rs.5 coins in the bag be x, y and z respectively
x + y + z = 150 ---------- (1)
Givens value of Rs.1 coins is at least 50% of total.
$\Rightarrow x \geq \frac{1}{2}(x + 2y + 5z)$

Putting the value of x from equation (1) as x = 150 - y - z
⇒ 2(150 – y – z) ≥ 150 - y - z + 2y + 5z
⇒ 150 ≥ 3y + 6z
⇒ 50 ≥ y + 2z ---------- (2)
The data is tabulated below:

| Denomination | 1 | 2 | 5 |
|---|---|---|---|
| Number | X | 127 – x | 23 |
| Value | X | 254 – 2x | 115 |

Given z = 23 and from (2), i.e., y + 2z ≤ 50
∴ y ≤ 4 , i.e. y = 1, 2, 3 or 4.
If y = 4, x = 123 and the value of the 2 rupee coins is 8/(123 + 8 + 115) or more than 3%. If y = 1, 2 or 3, this percentage is less than 3%
Number of Rs.2 coins = 4
Hence, option (A) is correct.

**7.** Let the cost price are Rs. 200, Rs. 300 and Rs. 400

| | Jacket | Socks | Shoes | Total |
|---|---|---|---|---|
| CP | 200 | 300 | 400 | 900 |
| Profit/loss | 40 | 75 | –40 | 75 |

Overall profit % = $\frac{75}{900} \times 100 = 8.33\%$

Hence, option (A) is correct.

**8.** Let the lengths of the stretches (in kms) of a, b, c be d1, d2, d3 respectively

$\frac{d1}{10} + \frac{d2}{12} + \frac{d3}{15} = 10$ .....(i)

$\frac{d1}{15} + \frac{d2}{12} + \frac{d3}{10} = 8$ .....(ii)

Adding (i) and (ii) we get

$\frac{d1}{6} + \frac{d2}{6} + \frac{d3}{6} = 18$

$\Rightarrow d1 + d2 + d3 = 108$ km

Hence, option (C) is correct.



**9.** Let C be the number of correct answers and W be the number of wrong answers.

$4C - W = 124$

$C = \frac{124 + W}{4}$

Number of questions attempted = C + W

$= 31 + \frac{W}{4} + W = 31 + \frac{5W}{4}$

So, W is multiple of 4

The possible values of (C + W) are 31,36,41,46……

Considering the choices only none of these is possible.

Hence, option (E) is correct.

**10.** Total number of chocolates = 13 × 17 = 221

For one box to have maximum number of chocolates, the other boxes need to have minimum number of chocolates i.e. 11, 12, ....., 22

Total = 11 × 12 + (0 + 1 + 2 +.....+ 11)

= 132 + 66 = 198

Therefore, maximum possible chocolates = 221 – 198 = 23

Hence, option (A) is correct.