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

Word Problems Quiz 21

Direction: Study the following questions carefully and choose the right answer.

1. Three friends, Anil, Bipin, and Chandu invested some money at the rate of interest 10% per annum, 12.5% per annum, and 20% per annum simple interest respectively. If the total interest accrued at the end of 2 years was Rs. 4200 and the amount invested by Anil was 150% of the amount invested by Bipin and the amount invested by Chandu is 25% more than the amount invested by Bipin. Find the difference between the amount invested by Anil and Chandu?

A. Rs. 1000   B. Rs. 1500   C. Rs. 1800   D. Rs. 1250   E. None of the above

2. The average weight of 20 students in a class increased by 5.75 kg when one of the students left the class but when a new student joined the class then the average weight decreased by 2.75 kg. What is the difference between the age of the new student who joined the class and the student who left the class?

A. 51.5 kg   B. 51.25 kg   C. 51.75 kg   D. 51 kg   E. None of the above

3. (175/3)% of the raindrops could have been collected, when 3 cm of rain has fallen on a part of land of area 2 km^2, in a tank having a 200 m × 10 m base, then water collected in the tank is 70% of its capacity. Find the capacity of the tank?

A. 70000 m^3 B. 120000 m^3 C. 100000 m^3 D. 95000 m^3 E. None of these

4. Mohit after travelling 60 km meets his school teacher who suggests him to go slower. He then proceeds at 4/5 of his initial speed and arrives his destination 25 minutes late. Had the meeting occured 25 km further Mohit would have reached his destination 13 minutes late. Find the final speed of Mohit ?

A. 30 km/hr   B. 35 km/hr   C. 25 km/hr   D. 22.5 km/hr   E. None of these

5. Four friends decided to contribute money and build a Temple. Ram contributes 83 1/3 % less than Neha and Vidhi while Shyam contributes 33 1/3 % less than Ram and 11 1/9 % more than Neha. If the annual income of Vidhi is Rs. 23,76,000 and she contributes 9/10 of her monthly income then find the contribution of Shyam.

A. Rs. 220000   B. Rs. 22000   C. Rs. 320000   D. Rs. 32000   E. None of these

6. In a class of 80 students, a student is to be selected for becoming monitor. If 20 % of total students belongs to ST category, 15 % belongs to SC category, 30 % belongs to OBC category and remaining belongs to General category and in each category the ratio of boys and girls is 1 : 1. What is the probability that the monitor selected is a girl who belongs to either ST or OBC category ?

A. $\dfrac{3}{5}$ B. $\dfrac{1}{4}$ C. $\dfrac{3}{4}$ D. $\dfrac{3}{8}$ E. None of these

7. In how many different ways the letters of the word 'UGANDA' can be arranged such that 'G' always comes at first place and 'N' always comes at last place ?

A. 60   B. 360   C. 12   D. 24   E. 720

8. The average height of a group of six friends is 145 cm. If three friends of average height 130 cm left the group and three friends with consecutive even numbers join the group, the average height of new group becomes 159 cm. Find the average of height of three friends who joined the group ?

A. 158 cm   B. 151 cm   C. 148 cm   D. 160 cm   E. None of these

9. Radha's present age is 1/6th of her mother's age. Radha's mother's age will be thrice of Mohan's age after 12 years. If Mohan's 8th birthday was celebrated 4 years ago, then what is the Radha's mother's present age ?

A. 54 years   B. 60 years   C. 10 years   D. 36 years   E. None of these

10. A packet contains some red pens, blue pens and black pens such that the probability of picking a red pen is 3/13 and probability of picking a black pen is 1/3. If no. of blue pens is 17 and if all the pens are numbered starting from 1,2,3,….. and so on , then what is the probability of getting one pen numbered as multiple of 5 or 8 ?

A. $\dfrac{2}{3}$ B. $\dfrac{3}{52}$ C. $\dfrac{3}{13}$ D. $\dfrac{11}{39}$ E. $\dfrac{10}{39}$

Correct Answers:

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

Explanations:

1. The amount invested by Anil was 150% of the amount invested by Bipin and the amount invested by Chandu is 25% more than the amount invested by Bipin

Let Bipin invested Rs. 4x @ 12.5% per annum

The investment of Anil = 150% of 4x = 6x @ 10% per annum and the investment of Chandu = 125% of 4x = 5x @ 20% per annum

According to the question,

SI received by Anil in 2 years = Rs. 1.2x
SI received by Bipin in 2 years = Rs. x
SI received by Chandu in 2 years = Rs. 2x
Total interest received = Rs. (1.2x + x + 2x) = Rs. 4.2x

According to the question,

4.2x = 4200
=> x = 1000

Difference between amount invested by Anil and Chandu = (6x - 5x) = x = 1000
Hence option A is correct

2. Let the average weight of 20 students = x kg
The total weight = 20x kg
Let the weight of the students who left the class = y kg
Then, according to the question, 20x − y = (x + 5.75) × 19
x = 109.25 + y ......(i)

Again, when one of the new student joined the class then let the weight of the new student who joined the class = z kg

20x + z = (x − 2.75) × 21
z = x − 57.75 ..... (ii)

Put the value of x from the equation (i) in the equation (ii)
z = 109.25 + y − 57.75

The required difference = z − y = 51.5 kg

Hence, option A is correct.

3. The volume of rain water in the land which could have been collected and the volume of water in the tank should be equal .

Let, level of water in the tank is h meter.

According to the question,

$$\frac{3}{100} \times 2000 \times 2000 \times \frac{175}{300} = 200 \times 10 \times h$$

h = 35 m

Volume of water in the tank = 200m × 10m × 35m = 70000 m³

Since, water in the tank is 70% of its capacity.

So, capacity of tank = $\frac{70000}{70} \times 100 = 100000$ m³

Hence, option C is correct.

4. Let initial speed of Mohit is 5 x km/hr

So, final speed of Mohit is 4 x km/hr

ATQ ,

$$\frac{25}{4x} - \frac{25}{5x} = \frac{25 - 13}{60}$$

$$x = \frac{25}{4}$$

So final speed = $\frac{4 \times 25}{4}$ = 25 km/hr

Hence, option C is correct.

5. ATQ ,

Contribution ratio of Ram and (Neha + Vidhi) = 1 : 6

Contribution ratio of Ram and Shyam = 3 : 2

Contribution ratio of Neha and Shyam = 9 : 10

Combining last two ratios ,

Ram : Shyam : Neha = 15 : 10 : 9

Again Ram and (Neha + Vidhi) = 15 : 90

So, Ram : Shyam : Neha : Vidhi = 15 : 10 : 9 :81

Now, annual income of Vidhi = Rs. 2376000

Monthly income of Vidhi = Rs. $\frac{2376000}{12}$

So, contribution of Vidhi

= Rs. $\frac{2376000}{12} \times \frac{9}{10}$ = Rs. 178200

Contribution of Shyam = $\frac{178200 \times 10}{81}$ = Rs. 22000

Hence, option B is correct.

6. Total no. of students in the class = 80

It is given that in each category no. of boys and no. of girls is 1 : 1

Category	% age	No. of student	No. of girls	No. of boys
ST	20	16	8	8
SC	15	12	6	6
OBC	30	24	12	12
General	35	28	14	14

Reqd. probability $= \dfrac{12}{80} + \dfrac{8}{80} = \dfrac{20}{80} = \dfrac{1}{4}$

Hence, option B is correct.

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7. Total letters = 6 (U, G, 2 A, N, D)

When G always comes at first place and N always comes at last place so we have 4 letters to arrange which can be arranged in 4! Ways. 'A' appears twice in the remaining 4 letters .

So, required number of ways $= \dfrac{4!}{2!} = 12$

Hence, option C is correct.

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8. Sum of height of group of six friends = 6 × 145 = 870 cm

After three friends left the group, sum of height of remaining three friends = 870 − (3 × 130) = 480 cm

Let height of three friends who joined the group be x cm , (x + 2)cm ,and (x + 4)cm

ATQ, 480 + x + (x + 2) + (x + 4) = 6 × 159

480 + 3x + 6 = 954

3x = 468

x = 156 cm

Reqd. average $= \dfrac{x + x + 2 + x + 4}{3} = x + 2 = 158\text{cm}.$

Hence, option A is correct.

9. Let Radha's present age = x

Then her mother's present age = 6x

Also given that Radha' mother's age will be thrice of Mohan's age after 12 years.

So, Mohan's age after 12 years = $\frac{1}{3} \times (6x + 12) = 2x + 4$

Also given that Mohan's 8th birthday was celebrated 4 years back.

So, Mohan's age after 12 years = 4 + 8 + 12 = 24 years

Now, 2x + 4 = 24

x = 10

So, Radha's mother's present age = 60 years

Hence, option B is correct.

10.

Given, P(Red) = $\frac{3}{13}$, P(Black) = $\frac{1}{3}$

And no. of blue pens = 17

As we know, P(Red) + P(Black) + P(Blue) = 1

$\frac{3}{13} + \frac{1}{3}$ + P(Blue) = 1

P(Blue) = $1 - \frac{22}{39} = \frac{17}{39}$

Let total no. of pens in the packet = x

Then, P(Blue) = $\frac{17}{x} = \frac{17}{39}$

x = 39

Also all the pens are numbered as 1,2,3.....,39

Numbers that are multiple of 5 = 5, 10, 15, 20, 25, 30 and 35

And numbers that are multiple of 8 = 8, 16, 24 and 32

Favourable outcomes = 11

So, probability of getting pen of multiple 5 or 8 = $\frac{11}{39}$

Hence, option D is correct.