

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

Word Problems Quiz 2

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

1. The MRP of a article is $60 \%$ above its manufacturing cost. The article is sold through a retailer, who earns $19 \%$ profit on his purchase price. What is the approx. profit percentage for the manufacturer who sells his article to the retailer? The retailer gives 15\% discount on MRP.
A. $15.2 \%$
B. $14.2 \%$
C. 13\%
D. $12.5 \%$
E. Can't be determined
2. In an exam of 100 marks, the average marks of a class of 40 students are 76. If the top 3 scorers of the class leave, the average score falls "down by 1. If the other two toppers except "the highest topper scored not more than 85. "then what is the minimum score the topper can score?
A. 86
B. 98
C. 95
D. 92
E. None of these
3. What is the total surface area of a rectangular parallelopiped having volume 408 c.c. and a base area of 24 sq.cm? The length of the cuboid is one-sixth the base area.
A. 326
B. 382
C. 388
D. 438
E. None of these
4. Rashid borrowed Rs. 15000 at the rate of $10 \%$ p.a. rate of compound interest, compound annually. He repaid a certain amount at the end of the first. Then he paid Rs. 12100 at the end of the 2nd year to completely discharge the loan. What amount did he repay at the end of 1st year?
A. 4500
B. 5500
C. 6500
D. 5800
E. None of these
5. There are three athletes $A, B$ and $C$ at a same point. A starts running from a point at a speed of $40 \mathrm{~m} / \mathrm{min}$. After 5 minutes, B starts running after A with a speed of $50 \mathrm{~m} / \mathrm{min}$. Simultaneously, C also starts running after $A$ at $60 \mathrm{~m} / \mathrm{min}$. What distance has C covered (in m ) when he catches $A$ ?
A. $\frac{500}{3}$
B. $\frac{1300}{3}$
C. $\frac{700}{3}$
D. 600
E. None of these
6. The hourly wages of a mason have increased by $25 \%$. Since the increase, the number of hours he works daily has reduced by $16 \%$. If he was earning Rs. 120 per day before the increase, how much (in Rs.) is he earning now?
A. 124.5
B. 115.5
C. 126
D. 120
E. None of these
7. There are 3 green, 4 orange and 5 white color bulbs in a bag. If a bulb is picked at random, what is the probability of having either a green or a white bulb?
A. $\frac{3}{4}$
B. $\frac{2}{3}$
C. $\frac{4}{3}$
D. $\frac{2}{5}$
E. None of these
8. Three men Ashok, Bindusar and Chankya invested Rs. 11000, Rs. 12000 and Rs. 17000 in a partnership business for a year. After a year, they got a return of Rs. 100000. If they decide to divide the amount on the basis of their shares of investment, then what amount will Chankya receive more than Ashok?
A. 12000
B. 15000
C. 27000
D. 35000
E. None of these
9. A boat takes 6 hours to cover 100 km downstream and 30 km upstream. If the boat goes 75 km downstream and returns back to its starting point in 8 hours, what is the speed of the boat in still water and the rate of the stream (in kmph) respectively?
A. 25 and 4
B. 25 and 5
C. 30 and 10
D. 20 and 5
E. None of these
10. $A$ and $B$ are the two alloys which were made by mixing aluminium and silver in the ratio 5:7 and 9:11. If 30 grams of alloy A and 50 grams of alloy B are melted and mixed to form another alloy C , what is the ratio of aluminium and silver in the new alloy $C$ ?
A. $7: 9$
B. $3: 4$
C. $4: 11$
D. $7: 6$
E. None of these

Correct Answers:

| $\mathbf{1}$ | $\mathbf{2}$ | $\mathbf{3}$ | $\mathbf{4}$ | $\mathbf{5}$ | $\mathbf{6}$ | $\mathbf{7}$ | $\mathbf{8}$ | $\mathbf{9}$ | $\mathbf{1 0}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| B | C | C | B | D | C | B | B | D | A |

## Explanations:

1. The manufacturer sells the product to retailer, and then retailer sells to the customer.

Assume manufacturing cost = 100 and manufacturer profit $=x$
As Maximum Retail Price (MRP) of a product is $60 \%$ above its manufacturing cost,
MRP $=160 \%$ of $100=160$
The retailer gives $15 \%$ discount on MRP. So, customer price is $85 \%$ of MRP.
Buyer Price $=85 \%$ of $160=136$
Manufacturer makes x rupees profit, and then retailer makes 19\% profit.
So, $119 \%$ of $(100+x)=136$
$\Rightarrow 119(100+x)=13600$
$\Rightarrow(100+x)=114.28$
$\Rightarrow x=14.28$
Hence, Manufacturer profit = 14.2\%
The correct option is B.
2. Total score of 40 students $=(40 \times 76)=3040$

Total score of top 3 scorers $=3040-(37 \times 75)=265$
To minimize the score of the top scorer, we assume the other two top scorers score the maximum they can = 85 marks each.
So, the top scorer scored = 265-170 = 95 marks.
Hence, option C is correct.
3.

Length $(I)=\frac{1}{6} \times 24=4 \mathrm{~cm}$
Base area $=1 \times b=24 \mathrm{sq} . \mathrm{cm}$
$\therefore$ Breadth $(b)=\frac{24}{4}=6 \mathrm{~cm}$

Volume of Cuboid (lbh) $=408$
$\therefore$ Height $(\mathrm{h})=\frac{408}{24}=17 \mathrm{~cm}$
$\therefore$ Total Surface area $=2(\mathrm{lb}+\mathrm{bh}+\mathrm{lh})$
$=2(4 \times 6+6 \times 17+17 \times 4)$
$=2(24+102+68)=388 \mathrm{sq} . \mathrm{cm}$
Hence, option C is correct.
4. Rs. 15000 borrowed at $10 \%$ p.a. will become Rs. 16500 at the end of the $1^{\text {st }}$ year. Let $k$ be the amount repaid at the end of the first year. Then the balance is Rs. $16500-\mathrm{k}$ will become the principal for the second year.
$\Rightarrow 110 \%$ of $(16500-\mathrm{k})=12100$
$\Rightarrow 16500-\mathrm{k}=11000$
$\Rightarrow \mathrm{k}=\mathrm{Rs} .5500$.
Hence, option B is correct.
5. When $B$ started, $A$ is ahead by $40 \times 5=200 \mathrm{~m}$

But $C$ will catch $A$ before the $B$ as he is faster than the $B$.
Since $A$ and $C$ run in the same direction, relative speed of $C=60-40=20 \mathrm{~m} / \mathrm{min}$
$\therefore$ Time taken by C to actually catch $\mathrm{A}=\frac{200}{20}=10 \mathrm{mins}$

Distance actually covered by C in this duration $=10 \times 60=600 \mathrm{~m}$ Hence, option D is correct.
6. Daily wages $=$ hourly wages $\times$ work hours.

Let the original hourly wages and work hours be Rs. $x$ and $y$ hours respectively.
Since he used to earn Rs. 120 earlier, $x y=120$
New hourly wages $=$ Rs. (1.25x) and new working hours $=0.84 y$
$\therefore$ New daily wages $=(1.25 x)(0.84 y)=1.05 x y=1.05 \times 120=$ Rs. 126
Hence, option C is correct.
7. Let $E_{1}, E_{2}$ be the event of picking a green bulb and white bulb respectively.

Total no. of bulbs in a bag $=3+4+5=12$
$E_{1}=\frac{3}{12}=\frac{1}{4}$
$E_{2}=\frac{5}{12}=\frac{5}{12}$
$P\left(E_{1}\right.$ or $\left.E_{2}\right)=P\left(E_{1}\right)+P\left(E_{2}\right)$
$=\frac{1}{4}+\frac{5}{12}=\frac{2}{3}$

Hence, option B is correct.
8. Chankya invested Rs. 17000 of the total $(11000+12000+17000)=$ Rs. 40000 . So, his share s $17 / 40$ of the total amount.
$\left(\frac{17}{40}-\frac{11}{40}\right)=\frac{6}{40}=\frac{3}{20}$

Ashok will receive of the total amount.
So, Chankya will receive of the total amount more than Ashok
$=\frac{3}{20} \times 100000=15000$

Hence, option B is correct.
9. Let the speed of the boat be $x$ and speed of stream be $y$.
$\therefore$ Upstream speed $=(x-y)$ and downstream speed $=(x+y)$
So we get,
$\frac{100}{(x+y)}+\frac{30}{(x-y)}=6$

Let $\left[\frac{1}{x+y}\right]=a$ and $b=\left[\frac{1}{x-y}\right]$
$\therefore 100 \mathrm{a}+30 \mathrm{~b}=6$
Similarly,
$75 a+75 b=8$
Solving both the equations simultaneously we get,
$a=\frac{1}{25}$ and $b=\frac{1}{15}$
$\therefore \mathrm{x}+\mathrm{y}=25$ and $\mathrm{x}-\mathrm{y}=15$
Solving for $x$ and $y, x=20$ and $y=5$
Hence, option D is correct.
10.

Aluminium in alloy $\mathrm{C}=\left[30 \times \frac{5}{12}\right]+\left[50 \times \frac{9}{20}\right]=35$
Silver in alloy $C=\left[30 \times \frac{7}{12}\right]+\left[50 \times \frac{11}{20}\right]=45$

Ratio of aluminium and silver in alloy $C=35: 45=7: 9$
Hence, option A is correct.

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