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Percentage Questions for CDS, CLAT and SSC Exams.

Percentage Quiz 7

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

1. 20 litres of a mixture contains 20% alcohol and the rest water. If 4 litres of water be mixed in it, the percentage of alcohol in the new mixture will be

- A. $33\frac{1}{3}\%$ B. $16\frac{2}{3}\%$ C. 25 % D. $12\frac{1}{2}\%$

2. The price of rice has increased by 60%. In order to restore the original price, the new price must be reduced by

- A. $33\frac{1}{3}\%$ B. $37\frac{1}{2}\%$ C. 40 % D. 45 %

3. The number that is to be added to 10% of 320 to have the sum as 30% of 230 is

- A. 37 B. 32 C. 23 D. 73

4. Three sets of 40, 50 and 60 students appeared for an examination and the pass percentage was 100, 90 and 80 respectively. The pass percentage of the whole set is

- A. $88\frac{2}{3}\%$ B. $84\frac{2}{3}\%$ C. $88\frac{1}{3}\%$ D. $84\frac{1}{3}\%$

5. In an examination A got 25% marks more than B, B got 10% less than C and C got 25% more than D. If D got 320 marks out of 500, the marks obtained by A were

- A. 405 B. 450 C. 360 D. 400

6. After the GST, market price of loose sugar decrease by 25% because of which Kavya now is able to buy 1 kg more sugar for Rs. 30. Find the reduced rate of sugar per kilogram.

- A. Rs. $17\frac{1}{2}$ B. Rs. $7\frac{1}{2}$ C. Rs. 10 D. Rs. $7\frac{3}{10}$

7. In an examination, 30% of the total students failed in Hindi, 45% failed in English and 20% failed in both subjects. Find the percentage of those who passed in both subjects.

- A. 35.7% B. 35% C. 40% D. 45%

8. Anish spends 25% of his salary on house rent, 5% on food, 15% on travel, 10% on clothes and the remaining amount of Rs. 22500 is saved. What is Anish's salary?

A. Rs. 40000

B. Rs.40500

C. Rs.45000

D. Rs. 50000

9. If each side of a cube is increased by 10% the volume of the cube will increase by

A. 30%

B. 10%

C. 33.1%

D. 25%

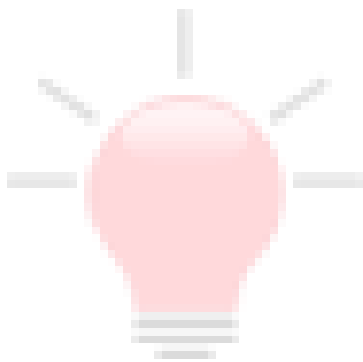
10. If A's salary is 25% more than that of B, then B's salary is less than A's by

A. 20%

B. $40\frac{1}{3}\%$

C. $45\frac{1}{3}\%$

D. $33\frac{1}{3}\%$



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Correct Answers:

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

Explanations:**1.**

$$\text{Quantity of alcohol} = \frac{20}{100} \times 20 = 4 \text{ litres}$$

$$\text{Quantity of water} = 20 - 4 = 16 \text{ litres}$$

Now, 4 litres of water be mixed in it, then new mixture = $20 + 4 = 24$ litres

$$\therefore \text{Percentage of alcohol} = \frac{4}{24} \times 100 = \frac{50}{3} = 16\frac{2}{3}\%$$

Hence, option (B) is correct.

2. We can find the reduction in price by applying the concept of constancy,

$$\text{The increase in price} = 60\% = \frac{3}{5}$$

$$\therefore \text{Increase in reduction} = \frac{3}{5+3}$$

$$= \frac{3}{8}$$

$$\text{Price reduction in \%} = \frac{3}{8} \times 100$$

$$= \frac{75}{2} = 37\frac{1}{2}\%$$

Hence, option (B) is correct.

3. Let the number be x .

According to the question,

$$10\% \text{ of } 320 + x = 30\% \text{ of } 230$$

$$\Rightarrow \frac{10}{100} \times 320 + x = \frac{30}{100} \times 230$$

$$\Rightarrow 32 + x = 69$$

$$\Rightarrow x = 69 - 32 = 37$$

Hence, option (A) is correct..

4. There are three sets of 40, 50 and 60 students.

$$\therefore \text{Total students} = 40 + 50 + 60 = 150$$

$$\text{And, total passed students} = 100\% \text{ of } 40 + 90\% \text{ of } 50 + 80\% \text{ of } 60 = 40 + 45 + 48 = 133$$

Now, required percentage

$$= \frac{\text{Total passed students}}{\text{Total students}} \times 100 = \frac{133}{150} \times 100 = \frac{266}{3} = 88\frac{2}{3}\%$$

Hence, option (A) is correct.

5. Method I :

Let D got 100 marks.

C got 25% marks more than D.

$$\therefore \text{Marks obtained by C} = 125$$

B got 10% marks less than C.

$$\therefore \text{Marks obtained by B} = 125 \times \frac{90}{100}$$

A got 25% marks more than B.

$$\text{Marks obtained by A} = 125 \times \frac{90}{100} \times \frac{125}{100} = \frac{1125}{8}$$

$$\text{Now, } 100 : \frac{1125}{8} :: 320 : x$$

$$\Rightarrow x = \frac{1125 \times 320}{8 \times 100} = 450$$

Method II :

Given that D's marks = 320

C got 25% marks more than D.

$$\therefore \text{Marks obtained by C} = 320 + 25\% \text{ of } 320 = 320 + 80 = 400$$

B got 10% marks less than C.

$$\therefore \text{Marks obtained by B} = 400 - 10\% \text{ of } 400 = 400 - 40 = 360$$

A got 25% marks more than B.

$$\therefore \text{Marks obtained by A} = 360 + 25\% \text{ of } 360 = 360 + 90 = 450$$

Hence, option (B) is correct.

6. Approach I:

Note: We know that

Expenditure = Price $\times$ Consumption

Keeping the expenses constant between price and consumption if one goes up, the other goes down and vice-versa.

Ex. If price goes up by 25% ($\frac{1}{4}$), then the consumption should go down by

$$\frac{1}{4+1} = \frac{1}{5} = 20\% \text{ to keep the expenses same.}$$

Here, reduction in price = 25% = $\frac{1}{4}$

$$= \frac{1}{4-1} = \frac{1}{3} = 1 \text{ kg}$$

$\therefore$ Increase in consumption will be

Which means kavya initially used to buy 3 kg sugar for 30/-

$$\therefore \text{Initial price of sugar} = \frac{30}{3} = 10/-$$

$\therefore$ Reduced price = (100 – 25)% of 10/-

$$= 75 \times 10 = 7.5$$

$$\text{or, Rs. } 7\frac{1}{2}$$

Approach II:

Let the actual price of sugar be Rs. x per kg.

$\therefore$ Reduced price of sugar

According to the question,

$$= (100 - 25) \times \frac{x}{100} = \text{Rs. } \frac{3x}{4} \text{ per kg}$$

$$\frac{30}{\frac{3x}{4}} - \frac{30}{x} = 1$$

$$\text{or, } \frac{40}{x} - \frac{30}{x} = 1$$

$$\therefore x = \text{Rs. } 10 \text{ kg}$$

$$\text{So, reduced rate of sugar per kg} = \frac{3x}{4}$$

$$= \frac{3 \times 10}{4} = \frac{15}{2} = \text{Rs. } 7\frac{1}{2}$$

Hence, option B is correct.

7. Let the number of students be 100.

Number of students who failed in Hindi is 30%

$$\therefore n(H) = 30$$

Number of students who failed in English is 45%

$$\therefore n(E) = 45$$

Number of students who failed in both the subjects is 20%

$$n(H \cap E) = 20$$

Applying the set theory rule,

$$n(H \cup E) = n(H) + n(E) - n(H \cap E)$$

$$= 30 + 45 - 20 = 55$$

$\therefore$ Percentage of students who failed in Hindi or English or both the subjects = 55%

$\therefore$ Number of students who passed in both the subjects = $100 - 55 = 45\%$

Hence, option D is correct.

8. Remaining salary percent = $[100 - (25 + 5 + 15 + 10)] = 100 - 55 = 45\%$

Let the total salary of Anish be x . Then,

According to the question,

$$45\% \text{ of } x = 22500$$

$$\Rightarrow x = \frac{22500}{45} \times 100 = \text{Rs. } 50000$$

Hence, option D is correct.

9. Volume of cube = (Edge)³ We can find the effective change by applying the net% effect.

$$\text{Net \% effect} = x + y + \frac{xy}{100}\%$$

$$\text{Here, } x = y = 10\%$$

$$= 10 + 10 + \frac{10 \times 10}{100} = 21\%$$

Again, applying the net % effect formula Here, $x = 21\%$, $y = 10\%$

$$= 21 + 10 + \frac{21 \times 10}{100} = 31 + 2.1 = 33.1\%$$

Hence, option C is correct.

10.

Given, A's salary is more than B's by $25\% = \frac{1}{4}$

Applying the concept of constancy,

$$\text{B's salary is less than A's} = \frac{1}{4+1} = \frac{1}{5}$$

$$\text{In percentage} = \frac{1}{5} \times 100\% = 20\%$$

Hence, option A is correct.



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