



Percentages Questions for NMAT

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Instructions

For the following questions answer them individually

Question 1

Two alcohol solutions, A and B, are mixed in the proportion 1:3 by volume. The volume of the mixture is then doubled by adding solution A such that the resulting mixture has 72% alcohol. If solution A has 60% alcohol, then the percentage of alcohol in solution B is

- A 90%
- B 94%
- C 92%
- D 89%

Answer: C

Explanation:

Initially let's consider A and B as one component

The volume of the mixture is doubled by adding A(60% alcohol) i.e they are mixed in 1:1 ratio and the resultant mixture has 72% alcohol.

Let the percentage of alcohol in component 1 be 'x'.

Using allegations, $\frac{(72-60)}{x-72} = \frac{1}{1} \Rightarrow x = 84$

Percentage of alcohol in A = 60% \Rightarrow Let's percentage of alcohol in B = x%

The resultant mixture has 84% alcohol. ratio = 1:3

Using allegations, $\frac{(x-84)}{84-60} = \frac{1}{3}$

$\Rightarrow x = 92\%$

Question 2

In a class, 60% of the students are girls and the rest are boys. There are 30 more girls than boys. If 68% of the students, including 30 boys, pass an examination, the percentage of the girls who do not pass is

Answer:20

Explanation:

Assuming the number of students =100x

Hence, the number of girls = 60x and the number of boys = 40x

We have, $60x - 40x = 30 \Rightarrow x = 1.5$

The number of girls = $60 * 1.5 = 90$

Number of girls that pass = $68x - 30 = 68 * 1.5 - 30 = 102 - 30 = 72$

The number of girls who do not pass = $90 - 72 = 18$

Hence the percentage of girls who do not pass = $1800/90 = 20$

Question 3

If 20% of x = y, then y% of 20 is same as

- A 10% of x
- B 20% of x
- C 15% of x
- D 4% of x

Answer: D

Explanation:

It is given 20% of $x = y$

$$x = 5y$$

We have to find $y\%$ of 20 = $\frac{y}{100} \times 20$

$$= \frac{y}{5}$$

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

= 4% of x

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Question 4

If the price of Sugar increases by 20%, and Salman intends to spend only an additional 5% on Sugar, then find out the percentage decrease in his sugar consumption.

A 5.25

B 12.5

C 11.75

D 10.25

Answer: B

Explanation:

Let the initial price and expenditure of sugar be 100p, 100e respectively.

$$\text{Consumption} = \frac{\text{Expenditure}}{\text{Price}}$$

$$= \frac{e}{p}$$

The increased price of sugar = 120p

Increased expenditure on sugar = 105e

$$\text{Changed consumption} = \frac{105e}{120p}$$

$$= 0.875 \frac{e}{p}$$

$$\text{Percentage decrease in consumption} = \frac{(0.875 - 1)}{1} * 100$$

$$= 12.5$$

B is the correct answer.

Question 5

Assume that the taxes on petrol is 125% of the price of petrol per litre as received by the retailer minus the taxes. If in the last week, the petrol prices per litre as received by the retailer minus the taxes was 35, 34, 35.5, 37, 37.5 and 38, the average amount of tax collected per litre of petrol is

A 45.2

B 46.1

C 44

D None of the option is correct

Answer: A

Explanation:

Sum of all (Petrol price per litre - taxes) in the last week = 35+34+35.5+37+37.5+38

$$= 217$$

Taxes on petrol = 1.25 times (the price of petrol - taxes)

$2.25 \times \text{taxes on petrol} = 1.25 \text{ times the price of petrol}$

The price of petrol = 1.8 times the taxes on petrol.

$1.8 \text{ times the taxes on petrol} - \text{taxes on petrol} = 217$

$0.8 \text{ times the taxes on petrol} = 217$

Taxes on petrol = $\frac{217}{0.8} = 271.25$

The average amount of tax collected = $\frac{271.25}{6}$

$$= 45.2$$

A is the correct answer.

Question 6

A man purchased a TV and fridge. If the price of TV is 150% of price of fridge then price of fridge is what percentage of the total cost of TV and fridge?

A 30

B 40

C 45

D 50

Answer: B

Explanation:

Let the cost of the fridge = $100x$

The price of the TV = $150x$ (Since the cost of TV is 150% of the cost of the fridge)

The price of the fridge = $\frac{100x}{100x+150x}$ times the price of TV and fridge

The price of the fridge = 40% of the price of TV and fridge

B is the correct answer.

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Question 7

Nawab has two sons Saif and Amir who have export businesses. Nawab's satisfaction/ utility level is given by adding twice of the satisfaction level of Saif with the satisfaction level of Amir. If Saif makes a profit of ₹ 100, his satisfaction level goes up by 10% and if he suffers a loss of ₹ 100, his satisfaction level goes down by 10%. If Amir makes profit of ₹ 100, his satisfaction level goes up by 5% and if he suffers a loss of ₹ 100, his satisfaction level goes down by 15%. Currently, Nawab's satisfaction level is 24 and the satisfaction level of Saif is the same as the satisfaction level of Amir. If Saif makes a profit of 100 and Amir suffers a loss of ₹ 100, what is the approximate percentage change in Nawab's satisfaction level?

A 1.25%

B 1.33%

C 1.5%

D 1.66%

Answer: D

Explanation:

Nawab's satisfaction/ utility level is given by adding twice of the satisfaction level of Saif with the satisfaction level of Amir.

Saif makes a profit of ₹ 100, his satisfaction level goes up by 10% and if he suffers a loss of ₹100, his satisfaction level goes down by 10%.

Amir makes profit of ₹ 100, his satisfaction level goes up by 5% and if he suffers a loss of ₹ 100, his satisfaction level goes down by 15%.

Nawab's satisfaction level is 24 and the satisfaction level of Saif is the same as the satisfaction level of Amir

Let x be the satisfaction level of Saif

$$24=3x$$

$$x=8$$

If Saif makes a profit of 100 and Amir suffers a loss of ₹ 100, the satisfaction level of Saif and Amir goes up by 10% and goes down by 15% respectively.

The satisfaction of Saif and Amir = 8.8 and 6.8

Nawab's new satisfaction/ utility level = $2 \times 8.8 + 6.8 = 24.4$

$$\text{Percentage change} = \frac{24.4 - 24}{24}$$

$$= 1.67\%$$

D is the correct answer.

Question 8

KBC restaurant chain regularly conducts survey of its customers. The customers are asked to rate the food quality, service and price as Excellent, Good and Fair. Customers are also asked whether they would comeback. It was found that 76% of customers say that they will come back. Amongst those who say that they will come back, 57% rate the restaurant as Excellent, 36% rate it as Good and remainder rate it as Fair. Of those who say that they will not return, the respective values are 14%, 32% and 54%. What percentage of customers rated the restaurant as good ?

A 27.4%

B 35%

C 51%

D 30.7%

Answer: B

Explanation:

Let the total customers be 100.

Number of customers who said that they will return = $76x$

Number of customers who said that will not return = $24x$

Number of customers among those who said that they will return rated the restaurant as good = $76x \times 0.36$

Number of customers among those who said that they will not return rated the restaurant as good = $24x \times 0.32$

Number of customers who rated the restaurant as good = $76x \times 0.36 + 24x \times 0.32 = 35.04x$

Percentage of customers who rated the restaurant as good = approx 35%

B is the correct answer.

Question 9

The salary of Raju and Ram is 20% and 30% less than the salary of Saroj respectively. By what percent is the salary of Raju more than the salary of Ram?

A 33.33%

B 50%

C 15.18%

D 14.28%

Answer: D

Explanation:

Let the salary of Saroj be $100x$

The salary of Raju = $80x$

The salary of Ram = $70x$

the percent by which the salary of Raju more than the salary of Ram = $\frac{80x-70x}{70x} \times 100$

$$= \frac{1}{7} \times 100$$

$$= 14.28\%$$

D is the correct answer.

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Question 10

A, B, C and D purchased a restaurant for Rs. 56 lakhs. The contribution of B, C and D together is 460% that of A, alone. The contribution of A, C and D together is 366.66% that of B's contribution and the contribution of C is 40% that of A, B and D together. The amount contributed by D is:

A 10 lakhs

B 12 lakhs

C 16 lakhs

D 18 lakhs

Answer: D

Explanation:

$$A+B+C+D = 56 \text{ -- Eq 1}$$

$$B+C+D = 4.6A \text{ -- Eq 2}$$

$$A+C+D = \frac{11B}{3} \text{ -- Eq 3}$$

$$A+B+D = 2.5C \text{ --Eq 4}$$

Using Eq 1 and 2, we get $A = 10$

Using Eq 1 and 4, we get $C = 16$

Using Eq 1 and 3, we get $B = 12$

On substituting the values of A, B, C in Eq 1, we get $D = 18$

D is the correct answer.

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