

Date: 5/11/2024

(1)

Tuesday

MON TUE WED THS FRI SAT
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General Ability

Q. A man buys 5kg of meat at Rs. 500 per kg. In addition, for every kilogram of meat purchased, he has to pay a consumption tax of 6% on the selling price. Calculate the total amount of money that he has to pay.

Solution:

To calculate the total amount of money the man has to pay, let's break down the problem into two parts:

1. Calculate the cost of meat without tax

$$\text{Price per kilogram} = \text{Rs. } 500$$

$$\text{Quantity of meat} = 5 \text{ kg}$$

$$\text{Total cost without tax} = 5 \text{ kg} \times 500 \text{ Rs/kg}$$

$$= \boxed{2500 \text{ Rs.}} \rightarrow \text{(i)}$$

2. Calculate the consumption tax.

$$\text{Tax rate} = 6\%$$

$$\text{Tax on each kilogram} = 6\% \text{ of } 500 \text{ Rs}$$

$$= 0.06 \times 500$$

$$= 30 \text{ Rs/kg}$$

$$\text{Total tax} = 30 \text{ Rs/kg} \times 5 \text{ kg} = \boxed{150 \text{ Rs}} \rightarrow \text{(ii)}$$

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(2)

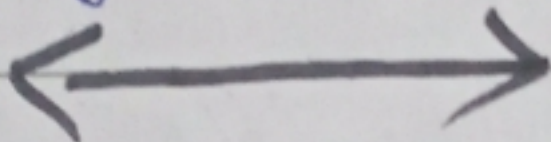
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3. Calculate the total amount payable

$$\text{Total amount} = \text{Cost of meat} + \text{Total tax}$$

$$\begin{aligned} \text{Total amount} &= 2500\text{Rs} + 150\text{Rs} \\ &= \boxed{2650\text{Rs}} \end{aligned}$$

The total amount of money the man
has to pay is Rs. 2650.



Q2(b) It takes Ali 30 minutes to mark a paper. Aslam only needs 25 minutes to mark a paper. If they both start marking papers at 10:00 AM, at what time they will finish marking at the same time?

Solution:

To find out when Ali and Aslam will finish marking papers at the same time, we need to determine the least common multiple (LCM) of the time each one takes to mark a paper.

Step 1:

Determine Time Taken by Each

Ali takes 30 minutes to mark one paper

Aslam takes 25 minutes to mark one paper

Step 2:

Find the LCM of 30 and 25.

The LCM of 30 and 25 will give the smallest number of minutes after which both will have marked the same number

of papers simultaneously.

Prime factorization:

$$30 = 2 \times 3 \times 5$$

$$25 = 5 \times 5$$

The LCM is calculated by taking the highest power of each prime factor:

$$\begin{aligned} \text{LCM} &= 2 \times 3 \times 5 \times 5 = \\ &= 150 \text{ minutes.} \end{aligned}$$

Step 3:

Calculate the Finishing Time

Both started at 10:00 AM

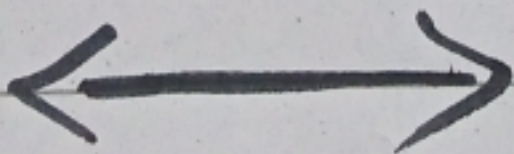
150 minutes is equivalent to
2 hours and 30 minutes

Therefore, they will finish marking
at the same time:

$$10:00 \text{ AM} + 2 \text{ hours } 30 \text{ minutes}$$

$$= 12:30 \text{ PM}$$

Ali and Aslam will finish marking
at the same time at 12:30 PM



Q1(c) There are nine students in a group having ages 15, 15, 16, 16, 16, 17, 17, 18, 19. Calculate mean, median, mode and range of their ages also define the above mentioned terms:

Solution:

Mean =

The mean is the average of a set of values, calculated by adding all the values together and dividing by the total number of values.

$$\text{Mean} = \frac{\text{Sum of all ages}}{\text{Number of students}}$$

$$= \frac{15 + 15 + 16 + 16 + 16 + 17 + 17 + 18 + 19}{9}$$

$$\text{Mean} = \frac{149}{9} = 16.56$$

2. Median:

The median is the middle value in a sorted list of numbers. If there is an even number of values, the median is the average of the two middle numbers.

The median is the middle value, which is the 5th value. Median = 16

3. Mode:

The mode is the value that appears most frequently in a set of values.

Here 16, appears 3 times which is more than any other value.

$$\boxed{\text{Mode} = 16}$$

4. Range:

The range is the difference between the highest and lowest values in a set.

$$\begin{aligned} \text{Range} &= \text{Highest age} - \text{Lowest age} \\ &= 19 - 15 \\ &= \boxed{4} \end{aligned}$$

Summary of the Results

$$1. \text{ Mean} = \frac{149}{9} = 16.56$$

$$2. \text{ Median} = 16$$

$$3. \text{ Mode} = 16$$

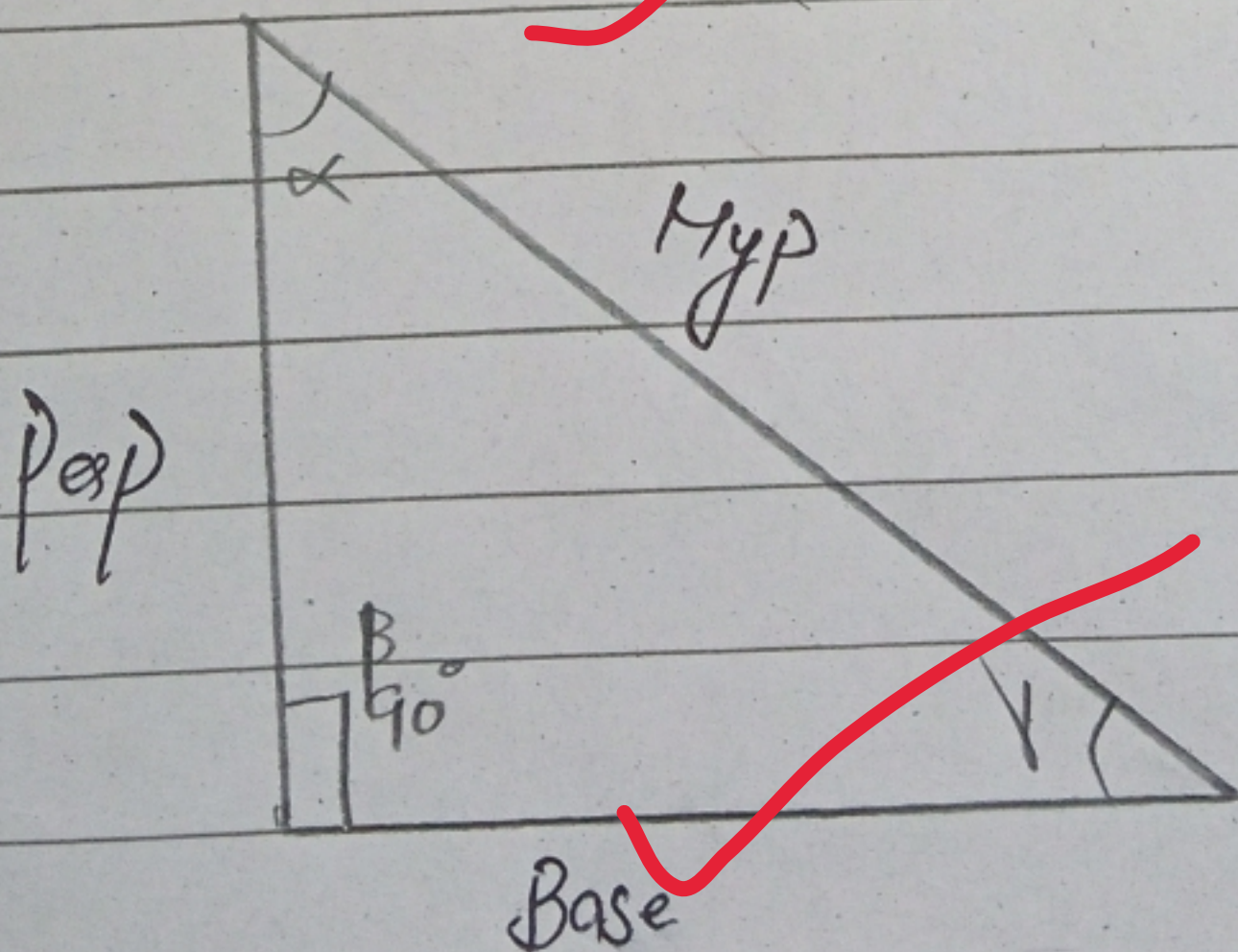
$$4. \text{ Range} = 4$$



Q1. (d) Define and draw the following:

(i) Right-Angled Triangle:

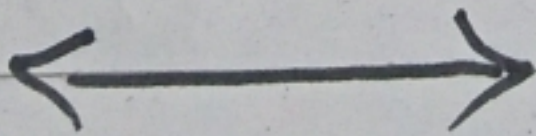
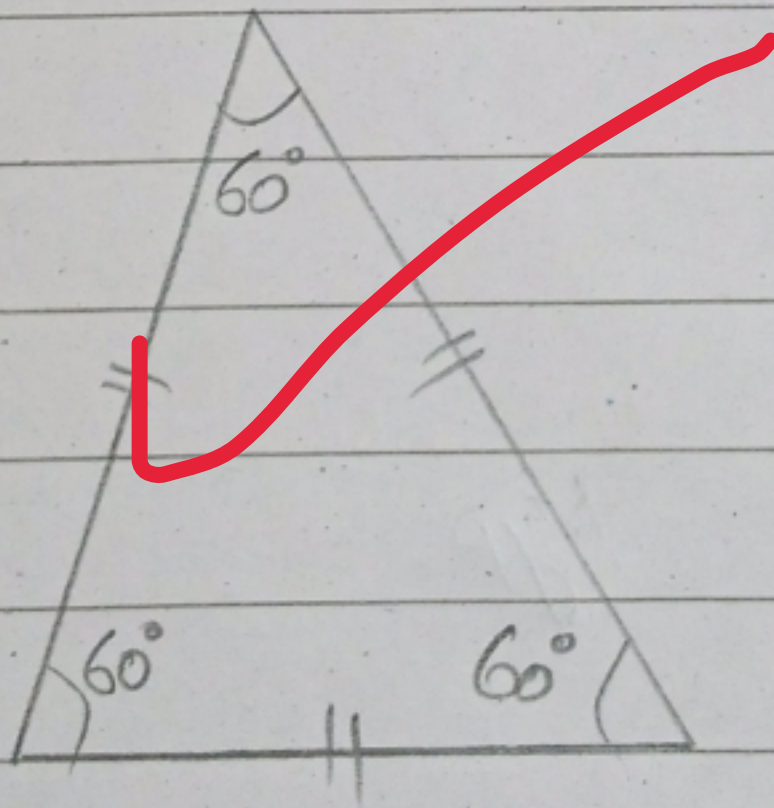
A right-angled triangle is a triangle in which one of the angles is exactly 90 degrees. This type of triangle has three sides: the hypotenuse (the longest side opposite the right angle) and two legs (the sides adjacent to the right angle).



(ii) Equilateral Triangle:

An equilateral triangle is a triangle in which all three sides are of equal length, and each of its three internal angles measures **60 degrees**.

This type of triangle is also called a regular triangle due to its equal sides and angles.



THE END