1. THE SUM OF TWO NUMBERS IS 45 AND THEIR DIFFERENCE IS 1/9 OF THEIR SUM. FIND THEIR LCM.

To solve the problem, we can follow these steps:

Define the numbers: Let the two numbers be x and y.

Set up the equations:

From the problem, we have: $$x + y = 45 \quad \text{(1)}$$

The difference is given as: $$|x - y| = \frac{1}{9} \times 45 = 5 \quad \text{(2)}$$

Solve the equations:

From equation (2), we can express the difference as: $$x - y = 5 \quad \text{(3)}$$

Now we can solve equations (1) and (3) together:

Adding equations (1) and (3): $$(x + y) + (x - y) = 45 + 5$$ $$2x = 50 \quad \Rightarrow \quad x = 25$$

Substituting x back into equation (1): $$25 + y = 45 \quad \Rightarrow \quad y = 20$$

Calculate the LCM:

Now we need to find the LCM of 25 and 20.

Prime factorization:

$25 = 5^2$

$20 = 2^2 \times 5^1$

The LCM is calculated by taking the highest power of each prime: $\text{LCM}(25, 20) = 2^2 \times 5^2 = 4 \times 25 = 100$

Thus, the LCM of the two numbers is 100.

2. THE HCF OF THREE NUMBERS IS 24. IF THESE NUMBERS ARE IN THE RATIO 35: 55: 77, THEN WHAT ARE THOSE NUMBERS?

To find the three numbers given their HCF and their ratio, we can follow these steps:

Understand the ratio: The numbers are in the ratio $35:55:77$. We can represent these numbers as:

$35x$

$55x$

$77x$ where x is a common multiplier.

Use the HCF: We know that the HCF of these numbers is 24. Therefore, we can set up the equation: $\text{HCF}(35x, 55x, 77x) = 24$

Calculate the HCF of the coefficients: First, we need to find the HCF of the coefficients $35, 55,$ and 77:

Prime factorization:

$(35 = 5 \times 7)$

$(55 = 5 \times 11)$

$(77 = 7 \times 11)$

The common factor is (5) (from (35) and (55)), and (7) (from (35) and (77)), but there is no single factor common to all three coefficients. Thus, the HCF of (35, 55,) and (77) is (1).

Relate HCF to the multiplier (x): Since the HCF of the numbers in terms of (x) is (1x) and we know that the overall HCF is (24), we can write: $[x \cdot 1 = 24 \quad \Rightarrow \quad x = 24]$

Find the actual numbers:

Now we can substitute (x) back into the expressions for the numbers:

First number: $(35x = 35 \times 24 = 840)$

Second number: $(55x = 55 \times 24 = 1320)$

Third number: $(77x = 77 \times 24 = 1848)$

Conclusion

The three numbers are:

840

1320

1848