Competency Based Questions

LCM and HCF of three numbers:

(i) Find the lcm and hcf of 72 and 120 applying prime factorization method.

(ii) Is it true that lcm × hcf = product of the numbers? Justify.

(iii) Now add one more number 12. Find the lcm and hcf of 12, 72 and 120 applying prime factorization method.

(iv) Is it true that lcm × hcf = product of the three numbers?

(v) Why or why not?

(vi) If not, then what could be the relation between the lcm and hcf of three numbers?

(vii) Hence find the lcm and hcf of 12, 72 and 120 using this relation.

(viii) Using the method derived above, find the ratio

$$\frac{\text{lcm}\ (434, 1519, 2170)}{\text{hcf}\ (434, 1519, 2170)}$$

if it is given that

$$\text{hcf}\ (434, 1519) = \text{hcf}\ (1519, 2170) = \text{hcf}\ (2170, 434) = 217.$$

(ix) Using the method derived above, find the ratio

$$\frac{\text{lcm}\ (434, 1519, 2170)}{\text{hcf}\ (434, 1519, 2170)}$$

if it is given that

$$\text{lcm}\ (434, 1519) = 3038,\ \text{lcm}\ (1519, 2170) = 15190,\ \text{lcm}\ (2170, 434) = 2170.$$