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(Affiliated to CBSE up to +2 Level)

CLASS: X

SUBJECT : MATHEMATICS

DATE: 13. 04.2021

Question 1: Express each number as a product of its prime factors:

(i) 140

(ii) 156

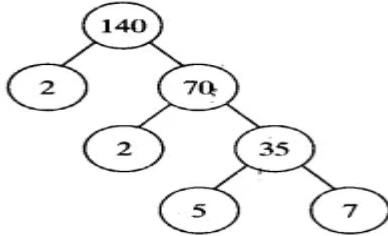
(iii) 3825

(iv) 5005

(v) 7429

Solution:

(i) 140



So, $140 = 2 \times 2 \times 5 \times 7$
 $= 2^2 \times 5 \times 7$

Alternatively:

(i) By prime factorization, we get:

2	140
2	70
5	35
7	7
	1

$\therefore 140 = 2 \times 2 \times 5 \times 7 = 2^2 \times 5 \times 7$

Question 2: Find the LCM and HCF of the following pairs of integers and verify that $LCM \times HCF =$ product of the two numbers.

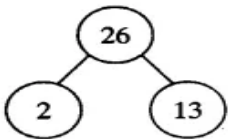
(i) 26 and 91

(ii) 510 and 92

(iii) 336 and 54

Solution:

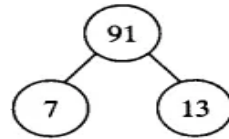
(i) 26 and 91



So, $26 = 2 \times 13$

Therefore, $HCF(26, 91) = 13$

$LCM(26, 91) = 13 \times 2 \times 7 = 182$



So, $91 = 7 \times 13$

Verification

$LCM \times HCF = 182 \times 13 = 2366$

Product of given numbers

$= 26 \times 91 = 2366$

So, $LCM \times HCF$

$=$ Product of given numbers

Alternatively:

(ii) By prime factorisation, we get:

$510 = 2 \times 3 \times 5 \times 17$

$92 = 2 \times 2 \times 23$

\therefore HCF of 510 and 92 = 2

and LCM of 510 and 92

$= 2^2 \times 3 \times 5 \times 17 \times 23 = 23460$

Now, $HCF \times LCM = 2 \times 23460 = 46920 \dots$ (i)

Product of numbers

$= 510 \times 92 = 46920 \dots$ (ii)

From (i) and (ii), we get:

$LCM \times HCF =$ Product of numbers

Hence, verified.

Question 3: Find the LCM and HCF of the following integers by applying the prime factorisation method.

(i) 12, 15 and 21

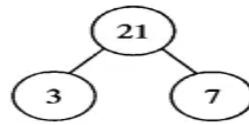
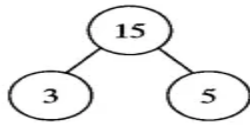
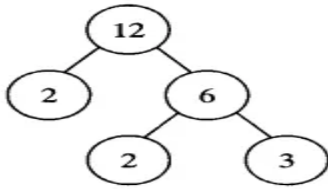
(ii) 17, 23 and 29

(iii) 8, 9 and 25

Solution: (i) 12, 15 and 21

Method 1:

(i) 12, 15 and 21



So, $12 = 2^2 \times 3$

$15 = 3 \times 5$

$21 = 3 \times 7$

Therefore, $\text{HCF}(12, 15, 21) = 3$

$\text{LCM}(12, 15, 21) = 2^2 \times 3 \times 5 \times 7 = 420$

Alternatively:

(i) By prime factorisation, we get:

$12 = 2 \times 2 \times 3$

$15 = 3 \times 5$

$21 = 3 \times 7$

$\therefore \text{HCF of } 12, 15 \text{ and } 21 = 3$

and $\text{LCM} = 2 \times 2 \times 3 \times 5 \times 7 = 420$.

Do Your Self
Reaming Questions