Exercise 2E

(ii)186 and 403

2	186
3	93
31	31
	1

13	403
31	31
	1

$186 = 2 \times 3 \times 31$

$403 = 31 \times 13$

HCF = 31

LCM = $31 \times 13 \times 6 = 2418$

Now, HCF × LCM = $31 \times 2418 = 74958$

Product of the two numbers = $186 \times 403 = 74958$

∴ HCF × LCM = Product of the two numbers

Verified.

(iii) 490 and 1155

2	490
5	245
7	49
7	7
	1

5	1155
7	231
3	33
11	11
	1

$490 = 7 \times 7 \times 2 \times 5$

$1155 = 5 \times 7 \times 3 \times 11$

HCF = $7 \times 5 = 35$

LCM = $7 \times 5 \times 7 \times 2 \times 3 \times 11 = 16170$

Now, HCF × LCM = $35 \times 16170 = 565950$

Product of the two numbers = $490 \times 1155 = 565950$

∴ HCF × LCM = Product of the two numbers

Verified.

Q17

Answer :

Product of the two numbers = 2160

HCF = 12

We know that LCM × HCF = Product of the two numbers

$\therefore$ LCM = $\frac{2160}{12}$ = 180

Q18

Answer :

Product of the two numbers = 2560
LCM = 320

We know that

LCM × HCF = Product of the two numbers

$\therefore$ HCF = $\frac{2560}{320}$ = 8

Q19

Answer :

HCF = 145
LCM = 2175
One of the number = 725

We know that
HCF × LCM = Product of two numbers
$\therefore$ Other number = $\frac{145 \times 2175}{725}$ = 435

Q20

Answer :

HCF = 131
LCM = 8253
One of the number = 917

We know that
LCM × HCF = Product of two numbers
Other number = $\frac{8253 \times 131}{917}$

$\therefore$ The other number is 1179.

Q21

Answer :

The given numbers are 15, 20, 24, 32 and 36.

The smallest number divisible by the numbers given above will be their LCM.

$2 \mid 15, 20, 24, 32, 36$

$3 \mid 15, 10, 12, 16, 18$

$5 \mid 5, 10, 4, 16, 6$

$2 \mid 1, 2, 4, 16, 6$

$2 \mid 1, 1, 2, 8, 3$

$2 \mid 1, 1, 1, 4, 3$

$2 \mid 1, 1, 1, 2, 3$

$3 \mid 1, 1, 1, 1, 3$

$1, 1, 1, 1, 1$

$\text{LCM} = 2^5 \times 3^2 \times 5$

$= 1440$

∴ The least number divisible by 15, 20, 24, 32 and 36 is 1440.

Q22

Answer :

25, 40 and 60 exactly divides the least number that is equal to their LCM.
So, the required number that leaves 9 as a remainder will be LCM + 9.

Finding the LCM:

$2 \mid 25, 40, 60$

$2 \mid 25, 20, 30$

$2 \mid 25, 10, 15$

$3 \mid 25, 5, 15$

$5 \mid 25, 5, 5$

$5 \mid 5, 1, 1$

$1, 1, 1$

$\text{LCM} = 2^3 \times 3 \times 5^2 = 600$

∴ Required number = 600 + 9 = 609

Q23

Answer :

LCM of 16, 18, 24 and 30:

$$
\begin{array}{r|l}
2 & 16, 18, 24, 30 \\
\hline
2 & 8, 9, 12, 15 \\
\hline
2 & 4, 9, 6, 15 \\
\hline
2 & 2, 9, 3, 15 \\
\hline
3 & 1, 9, 3, 15 \\
\hline
3 & 1, 3, 1, 5 \\
\hline
5 & 1, 1, 1, 5 \\
\hline
 & 1, 1, 1, 1
\end{array}
$$

$$\text{LCM} = 2^4 \times 3^2 \times 5 = 720$$

********** END **********