Prime Factorisation - HCFs and LCM

Prime Numbers
A prime number is an integer which is divisible only by $I$ and itself. By convention, $I$ is not considered prime

Low Primes $2,3,5,7,11,13,17,19,23,29$, $31,37,41,43,47$

Prime Factorisation

Ex 60

$$
\begin{aligned}
& 2 \lcm{60} \\
& 2 \lcm{130} \\
& 3 \lcm{15} \\
& 5 \lcm{55}
\end{aligned}
$$



$$
\begin{aligned}
& 60=2 \times 2 \times 3 \times 5 \\
& 60=2^{2} \times 3 \times 5
\end{aligned}
$$

$E * 284$

$$
\begin{aligned}
& 2 \lcm{84} \\
& 2 \lcm{42} \\
& 3 \lcm{21} \\
& 7 \lcm{\boxed{7}}
\end{aligned}
$$

Find the Highest Common Factor HCF of 60 and 84

$$
\begin{aligned}
& 60=(2) \times 2 \times(3) \times 5 \\
& 84=2 \times 2 \times 3 \times 7
\end{aligned}
$$

$$
H C F=2 \times 2 \times 3=12
$$

Find the Lowest Common Multiple LCM of 60 and 84

$$
\begin{aligned}
& 60=2 \times 2 \times 3 \times 5 \\
& 84=2 \times 2 \times 3 \times 7
\end{aligned}
$$

LCM has all the factors of both numbers

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

Ex 3 Find the prime factorisations of 56 and 140 Find their HCF and their LCM

$$
\begin{aligned}
& \begin{array}{l}
2 \underline{56} \\
2 \underline{28} \\
2 \lcm{14} \\
7 \lcm{7}
\end{array} \\
& \begin{array}{l}
2 \lcm{140} \\
2 \lcm{70} \\
5 \lcm{135} \\
7 \lcm{\boxed{7}}
\end{array} \\
& 56=(2) \times(2) \times 2 \times(7) \\
& 140=\text { (2) } \times(2) \times 5 \times(7) \\
& \text { CF }=2 \times 2 \times 7=28 \\
& \text { LCM }=2 \times 2 \times 2 \times 7 \times 5=280
\end{aligned}
$$

$E \times 4 \quad 65$ and 26

$$
\begin{array}{ll}
5 \frac{165}{133} & 2 \boxed{26} \\
& 13 \frac{13}{1}
\end{array}
$$

$$
\begin{aligned}
65 & =5 \times 13 \\
26 & =2 \times 13 \\
H C F & =13 \\
L C M & =5 \times 13 \times 2=130
\end{aligned}
$$

