

ROJGAR WITH ANKIT

LCM & HCF

PART-2

$$\frac{a}{b}, \frac{c}{d}, \frac{e}{f}, \frac{g}{h} \text{ [simplest form]}$$

$$\underline{\text{LCM}}:- \frac{\text{LCM}(a, c, e, g)}{\text{HCF}(b, d, f, h)}$$

$$\underline{\text{HCF}}:- \frac{\text{HCF}(a, c, e, g)}{\text{LCM}(b, d, f, h)}$$

$$\text{Eg: } \frac{2}{3}, \frac{3}{5}, \frac{4}{7}, \frac{8}{9}$$

$$\underline{\text{HCF}}:- \frac{\text{HCF}(2, 3, 4, 8)}{\text{LCM}(3, 5, 7, 9)} \Rightarrow \frac{1}{5 \times 7 \times 9} \Rightarrow \boxed{\frac{1}{315}} \text{ Ans}$$

$$\underline{\text{LCM}}:- \frac{\text{LCM}(2, 3, 4, 8)}{\text{HCF}(3, 5, 7, 9)} \Rightarrow \frac{24}{1} \Rightarrow \boxed{24} \text{ Ans}$$

(4). 9, 8.1, 0.27, 0.09 का LCM ज्ञात करें-
(Find LCM) -

$$\frac{9}{1}, \frac{81}{10}, \frac{27}{100}, \frac{9}{100}$$

$$\text{LCM} \Rightarrow \frac{\text{LCM}(9, 81, 27, 9)}{\text{HCF}(1, 10, 100, 100)} \Rightarrow \frac{81}{1} \Rightarrow \boxed{81} \text{ Ans}$$

(2). 0.126, 0.86 और 0.96 का LCM - (Find LCM of) -

$$\frac{126}{1000} \frac{63}{500}, \frac{36}{100} \frac{9}{25}, \frac{96}{100} \frac{24}{25}$$

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$$\frac{\text{LCM}(63, 9, 24)}{\text{HCF}(500, 25, 25)}$$

$$\Rightarrow \frac{504 \times 4}{25 \times 4} \Rightarrow \frac{2016}{100}$$

$$\Rightarrow \boxed{20.16} \text{ Ans}$$

$$\begin{array}{r|l} 3 & 63, 9, 24 \\ \hline 3 & 21, 3, 8 \\ \hline & 7, 1, 8 \end{array}$$

$$56 \times 9 = 504$$

(3). $\frac{9}{10}, \frac{12}{25}, \frac{18}{35}, \frac{21}{40}$ का LCM ज्ञात करें/ Find LCM of-

$$\frac{\text{LCM}(9, 12, 18, 21)}{\text{HCF}(10, 25, 35, 40)}$$

$$\Rightarrow \boxed{\frac{252}{5}} \text{ Ans}$$

$$\begin{array}{r|l} 3 & 9, 12, 18, 21 \\ \hline & 3, 4, 6, 7 \\ \hline & \underbrace{12 \times 7}_{84 \times 3} \\ & \Rightarrow 252 \end{array}$$

(4). $\frac{1}{6}, \frac{7}{27}, \frac{5}{9}, \frac{4}{15}$ और $\frac{8}{3}$ का ल.सं.प. ज्ञात करें-
(Find the LCM of)-

$$\frac{\text{LCM}(1, 7, 5, 4, 8)}{\text{HCF}(6, 27, 9, 15, 3)} \Rightarrow \boxed{\frac{280}{3}} \text{ Ans}$$

(5). $\frac{5^1}{20_4}, \frac{6^1}{18_3}, \frac{2}{3}, \frac{4}{5}$

$$\frac{\text{LCM}}{\text{HCF}}: \frac{\text{LCM}(1, 1, 2, 4)}{\text{HCF}(4, 3, 3, 5)} \Rightarrow \frac{4}{1} \Rightarrow \boxed{4}$$

$$\frac{\text{HCF}}{\text{LCM}}: \frac{\text{HCF}(1, 1, 2, 4)}{\text{LCM}(4, 3, 3, 5)} \Rightarrow \boxed{\frac{1}{60}} \text{ Ans}$$

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Power Expression :

$$\left(\begin{array}{l} 2^3 \times 3^5 \times 5^7 \times 7^{11} \\ 2^7 \times 3^9 \times 5^{13} \times 7^4 \times 11^2 \end{array} \right)$$

LCM: बड़ी power वाला LCM होगा और कुछ भी छूटना नहीं चाहिए -
 $\Rightarrow 2^7 \times 3^9 \times 5^{13} \times 7^{11} \times 11^2$

HCF: छोटी power लेगे जो हर जगह मौजूद होगा; केवल उसी को लेगे -
 $\Rightarrow 2^3 \times 3^5 \times 5^7 \times 7^4$

$$\left. \begin{array}{l} a). 2^7 \times 7^9 \times 3^5 \times 5^3 \\ b). 3^9 \times 7^3 \times 11^2 \\ c). 7^5 \times 2^1 \times 3^5 \end{array} \right\} \text{HCF/LCM}$$

HCF: $3^5 \times 7^3$

LCM: $2^7 \times 3^9 \times 5^3 \times 7^9 \times 11^2$

(6). $3^4 \times 5^2 \times 7^2 \times 11$; $3^3 \times 5 \times 7 \times 11^2$ और $3^2 \times 5^3 \times 11^4$ का ल.स.प. होगा/ Find LCM of -

LCM $\Rightarrow 3^4 \times 5^3 \times 7^2 \times 11^4$ Ans

HCF: $3^2 \times 5^1 \times 11^1$

(7). $2^2 \times 3^3 \times 5 \times 7^2$, $2^3 \times 3^2 \times 5^2 \times 7^4$; $2 \times 3 \times 5^3 \times 7 \times 11$ का ल.स. होगा/ Find LCM of -

$\Rightarrow 2^3 \times 3^3 \times 5^3 \times 7^4 \times 11$ Ans

(8). $4a^3b^2c^2$, $6a^2b^3c$ और $8a^3bc^2$ का LCM बताओ -
 (LCM will be) -

$\Rightarrow 24a^3b^3c^2$ Ans

LCM: $6xy$

$2x$ $3y$ $2ab$ $3cd$

LCM: $6abcd$

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9. यदि दो सं. का अनुपात $3:5$ है तथा उनका ल.सं. 10 है, तो संख्याओं का योगफल है— 90

$$\begin{array}{cc} 3A & 5A \\ \text{---} & \text{---} \\ 15A = \frac{10}{15} \end{array}$$

$$8A \Rightarrow \boxed{\frac{8 \times 102}{15.3}} = \frac{16}{3}$$

$$\begin{array}{cc} 3A & 5A \\ \text{---} & \text{---} \\ 15A = 906 \end{array}$$

$$8A = 8 \times 6$$

$$\boxed{48} \text{ Ans}$$