

prime Factors (LCM Lowest Common Multiple)

1) Find the lowest common multiple (LCM) of 28 and 105

Sol

$$\begin{array}{r|l} 2 & 28 \\ \hline 2 & 14 \\ \hline 7 & 7 \\ \hline & 1 \end{array}$$

$$\begin{array}{r|l} 3 & 105 \\ \hline 5 & 35 \\ \hline 7 & 7 \\ \hline & 1 \end{array}$$

$$28 = 2 \times 2 \times 7$$

$$105 = 3 \times 5 \times 7$$

$$\begin{aligned} \text{LCM}(28, 105) &= 7 \times 2 \times 2 \\ &\quad \times 3 \times 5 \\ &= 420 \end{aligned}$$

2) $A = 3^2 \times 5^4 \times 7$ $B = 3^4 \times 5^3 \times 7 \times 11$

Find the lowest common multiple (LCM) of A and B.

$$\therefore a^0 = 1$$

Sol: $A = 3^2 \times 5^4 \times 7 \Rightarrow A = 3^2 \times 5^4 \times 7 \times 11^0$

$$B = 3^4 \times 5^3 \times 7 \times 11 \Rightarrow B = 3^4 \times 5^3 \times 7 \times 11^1$$

$$\text{LCM}(A, B) = 3^4 \times 5^4 \times 7 \times 11$$

$$\text{LCM}(A, B) = 3^4 \times 5^4 \times 7 \times 11$$

3) Find the Lowest common Multiple (LCM) of 60, 75, 98.

Sol:

$$\begin{array}{r|l} 2 & 60 \\ \hline 2 & 30 \\ \hline 3 & 15 \\ \hline 5 & 5 \\ \hline & 1 \end{array}$$

$$\begin{array}{r|l} 3 & 75 \\ \hline 5 & 25 \\ \hline 5 & 5 \\ \hline & 1 \end{array}$$

$$\begin{array}{r|l} 2 & 98 \\ \hline 7 & 49 \\ \hline 7 & 7 \\ \hline & 1 \end{array}$$

$$60 = 2 \times 2 \times 3 \times 5 \Rightarrow 60 = 2^2 \times 3 \times 5$$

$$75 = 3 \times 5 \times 5 \Rightarrow 75 = 3 \times 5^2$$

$$98 = 2 \times 7 \times 7 \Rightarrow 98 = 2 \times 7^2$$

$$\text{LCM}(60, 75, 98) = 2^2 \times 3 \times 5^2 \times 7^2$$