



UDAAN



2026

REAL NUMBERS

MATHS

LECTURE-1

BY-RITIK SIR



Topic to be covered



- ① Factors & Multiples
- ② Prime and Composite no.s
- ③ HCF & LCM using prime factorisation.



WORK HARD

DREAM BIG

NEVER GIVE UP



DOUBTS



Doubt 1. Difference between **Standard Maths** and **Basic Maths**?

DOUBTS



Doubt 2. Konsi Books?

Notes

① NCERT

② Maths handwritten notes.

③ Question bank.

DOUBTS



Doubt 3. Aapki strategy to score 100/100 in UDAAN batch?

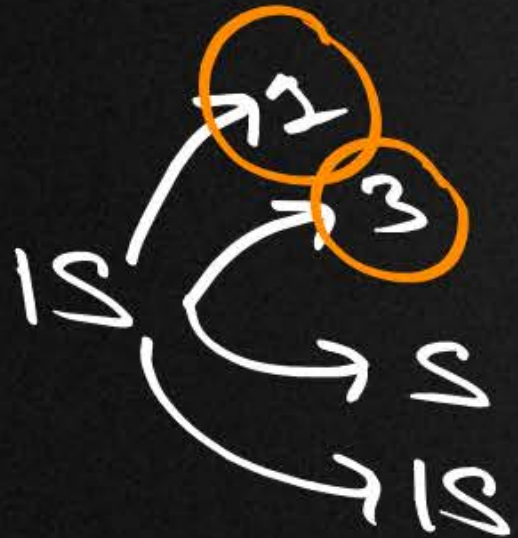
1. Blindly follow my lectures + DPP
2. Revision → Notes + Question bank
3. Last main Sample papers

Factors



Common factors
= $(1, 3)$

Highest common
factor = 3



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

Multiples

$$12 = 12, 24, 36, 48, 60, \dots$$

$$15 = 15, 30, 45, 60, 75, \dots$$

Common multiple = 60,

Least common multiple = 60

$$\text{LCM}(12, 15) = 60$$

Meaning of Finding HCF (a, b)

Sabse bada number jo 'a' or 'b' dono ko divide karde.

Meaning of Finding LCM (a, b, c)

Sabse chota number jo 'a', 'b', 'c' teeno se divide ho jaiye.

Prime Factorisation

$$\begin{array}{r|l}
 2 & 180 \\
 \hline
 2 & 90 \\
 2 & 45 \\
 3 & 15 \\
 3 & 5 \\
 5 & 1
 \end{array}$$

$$180 = 2 \times 2 \times 5 \times 3 \times 3$$

$$180 = 2^2 \times 5^1 \times 3^2$$

$$\begin{array}{r|l}
 9 & 18 \\
 \hline
 2 & 2 \\
 & 1
 \end{array}$$

$$18 = 9 \times 2$$

$$\begin{array}{r|l}
 2 & 240 \\
 \hline
 2 & 120 \\
 2 & 60 \\
 2 & 30 \\
 3 & 10 \\
 5 & 2 \\
 2 & 1
 \end{array}$$

$$240 = 2^4 \times 3^1 \times 5^1$$

9, 18, 36, 54, 72, 90, 108, 126, 144, 162, 180, 198, 216, 234, 252, 270, 288, 306, 324, 342, 360, 378, 396, 414, 432, 450, 468, 486, 504, 522, 540, 558, 576, 594, 612, 630, 648, 666, 684, 702, 720, 738, 756, 774, 792, 810, 828, 846, 864, 882, 900, 918, 936, 954, 972, 990, 1008, 1026, 1044, 1062, 1080, 1098, 1116, 1134, 1152, 1170, 1188, 1206, 1224, 1242, 1260, 1278, 1296, 1314, 1332, 1350, 1368, 1386, 1404, 1422, 1440, 1458, 1476, 1494, 1512, 1530, 1548, 1566, 1584, 1602, 1620, 1638, 1656, 1674, 1692, 1710, 1728, 1746, 1764, 1782, 1800, 1818, 1836, 1854, 1872, 1890, 1908, 1926, 1944, 1962, 1980, 1998, 2016, 2034, 2052, 2070, 2088, 2106, 2124, 2142, 2160, 2178, 2196, 2214, 2232, 2250, 2268, 2286, 2304, 2322, 2340, 2358, 2376, 2394, 2412, 2430, 2448, 2466, 2484, 2502, 2520, 2538, 2556, 2574, 2592, 2610, 2628, 2646, 2664, 2682, 2700, 2718, 2736, 2754, 2772, 2790, 2808, 2826, 2844, 2862, 2880, 2898, 2916, 2934, 2952, 2970, 2988, 3006, 3024, 3042, 3060, 3078, 3096, 3114, 3132, 3150, 3168, 3186, 3204, 3222, 3240, 3258, 3276, 3294, 3312, 3330, 3348, 3366, 3384, 3402, 3420, 3438, 3456, 3474, 3492, 3510, 3528, 3546, 3564, 3582, 3600, 3618, 3636, 3654, 3672, 3690, 3708, 3726, 3744, 3762, 3780, 3798, 3816, 3834, 3852, 3870, 3888, 3906, 3924, 3942, 3960, 3978, 3996, 4014, 4032, 4050, 4068, 4086, 4104, 4122, 4140, 4158, 4176, 4194, 4212, 4230, 4248, 4266, 4284, 4302, 4320, 4338, 4356, 4374, 4392, 4410, 4428, 4446, 4464, 4482, 4500, 4518, 4536, 4554, 4572, 4590, 4608, 4626, 4644, 4662, 4680, 4698, 4716, 4734, 4752, 4770, 4788, 4806, 4824, 4842, 4860, 4878, 4896, 4914, 4932, 4950, 4968, 4986, 5004, 5022, 5040, 5058, 5076, 5094, 5112, 5130, 5148, 5166, 5184, 5202, 5220, 5238, 5256, 5274, 5292, 5310, 5328, 5346, 5364, 5382, 5400, 5418, 5436, 5454, 5472, 5490, 5508, 5526, 5544, 5562, 5580, 5598, 5616, 5634, 5652, 5670, 5688, 5706, 5724, 5742, 5760, 5778, 5796, 5814, 5832, 5850, 5868, 5886, 5904, 5922, 5940, 5958, 5976, 5994, 6012, 6030, 6048, 6066, 6084, 6102, 6120, 6138, 6156, 6174, 6192, 6210, 6228, 6246, 6264, 6282, 6300, 6318, 6336, 6354, 6372, 6390, 6408, 6426, 6444, 6462, 6480, 6498, 6516, 6534, 6552, 6570, 6588, 6606, 6624, 6642, 6660, 6678, 6696, 6714, 6732, 6750, 6768, 6786, 6804, 6822, 6840, 6858, 6876, 6894, 6912, 6930, 6948, 6966, 6984, 7002, 7020, 7038, 7056, 7074, 7092, 7110, 7128, 7146, 7164, 7182, 7200, 7218, 7236, 7254, 7272, 7290, 7308, 7326, 7344, 7362, 7380, 7398, 7416, 7434, 7452, 7470, 7488, 7506, 7524, 7542, 7560, 7578, 7596, 7614, 7632, 7650, 7668, 7686, 7704, 7722, 7740, 7758, 7776, 7794, 7812, 7830, 7848, 7866, 7884, 7902, 7920, 7938, 7956, 7974, 7992, 8010, 8028, 8046, 8064, 8082, 8100, 8118, 8136, 8154, 8172, 8190, 8208, 8226, 8244, 8262, 8280, 8298, 8316, 8334, 8352, 8370, 8388, 8406, 8424, 8442, 8460, 8478, 8496, 8514, 8532, 8550, 8568, 8586, 8604, 8622, 8640, 8658, 8676, 8694, 8712, 8730, 8748, 8766, 8784, 8802, 8820, 8838, 8856, 8874, 8892, 8910, 8928, 8946, 8964, 8982, 9000, 9018, 9036, 9054, 9072, 9090, 9108, 9126, 9144, 9162, 9180, 9198, 9216, 9234, 9252, 9270, 9288, 9306, 9324, 9342, 9360, 9378, 9396, 9414, 9432, 9450, 9468, 9486, 9504, 9522, 9540, 9558, 9576, 9594, 9612, 9630, 9648, 9666, 9684, 9702, 9720, 9738, 9756, 9774, 9792, 9810, 9828, 9846, 9864, 9882, 9900, 9918, 9936, 9954, 9972, 9990, 10000

QUESTION

$$5^0 = 1$$

#Q. Find the HCF and LCM of 90 and 144 by the prime factorization method.

$$\text{HCF}(90, 144) = 18$$

$$\text{LCM}(90, 144) = 720$$

$$90 = 2^1 \times 3^2 \times 5^1$$

$$144 = 2^4 \times 3^2 \times 5^0$$

$$\text{HCF} = 2^1 \times 3^2 \times 5^0 = 18$$

$$\begin{aligned}\text{LCM} &= 2^4 \times 3^2 \times 5^1 \\ &= 16 \times 9 \times 5 \\ &= 720\end{aligned}$$

$$\begin{array}{r|l} 2 & 90 \\ 3 & 45 \\ 3 & 15 \\ 3 & 5 \\ 5 & 1 \end{array}$$

$$\begin{array}{r|l} 2 & 144 \\ 2 & 72 \\ 2 & 36 \\ 2 & 18 \\ 3 & 6 \\ 3 & 2 \end{array}$$

QUESTION

#Q. Find the HCF and LCM of 144, 180 and 192 by the prime factorization

method. $144 = 2^4 \times 3^2 \times 5^0$

$$180 = 2^2 \times 3^2 \times 5^1$$

$$192 = 2^6 \times 3^1 \times 5^0$$

$$\text{HCF} = 2^2 \times 3^1 \times 5^0$$

$$= \textcircled{12}$$

$$\text{LCM} = 2^6 \times 3^2 \times 5^1$$

$$= \textcircled{2880}$$

$$\begin{array}{r|l} 2 & 144 \\ \hline 2 & 72 \\ 2 & 36 \\ 2 & 18 \\ 2 & 9 \\ 3 & 3 \\ 3 & 1 \end{array}$$

$$\begin{array}{r|l} 2 & 180 \\ \hline 2 & 90 \\ 2 & 45 \\ 3 & 15 \\ 3 & 5 \\ 5 & 1 \end{array}$$

$$\begin{array}{r|l} 2 & 192 \\ \hline 2 & 96 \\ 2 & 48 \\ 2 & 24 \\ 2 & 12 \\ 2 & 6 \\ 3 & 2 \\ 2 & 1 \end{array}$$

A 12, 280

☒ **B** 12, 2880

C 14, 2880

D NOTA

QUESTION



#Q. Write the smallest number which is divisible by both 306 and 657.

CBSE 2019

$$\text{LCM}(306, 657) = 22338$$

$$306 = 3^2 \times 2^1 \times 17^1 \times 73^0$$

$$657 = 3^2 \times 73^1 \times 2^0 \times 17^0$$

$$\begin{aligned}\text{LCM} &= 3^2 \times 2^1 \times 73^1 \times 17^1 \\ &= 9 \times 2 \times 73 \times 17 =\end{aligned}$$

$$\begin{array}{r|l} 3 & 306 \\ \hline 3 & 102 \\ 2 & 51 \\ 17 & 3 \end{array}$$

$$\begin{array}{r|l} 3 & 657 \\ \hline 3 & 219 \\ 73 & 3 \end{array}$$

QUESTION

#G.PH

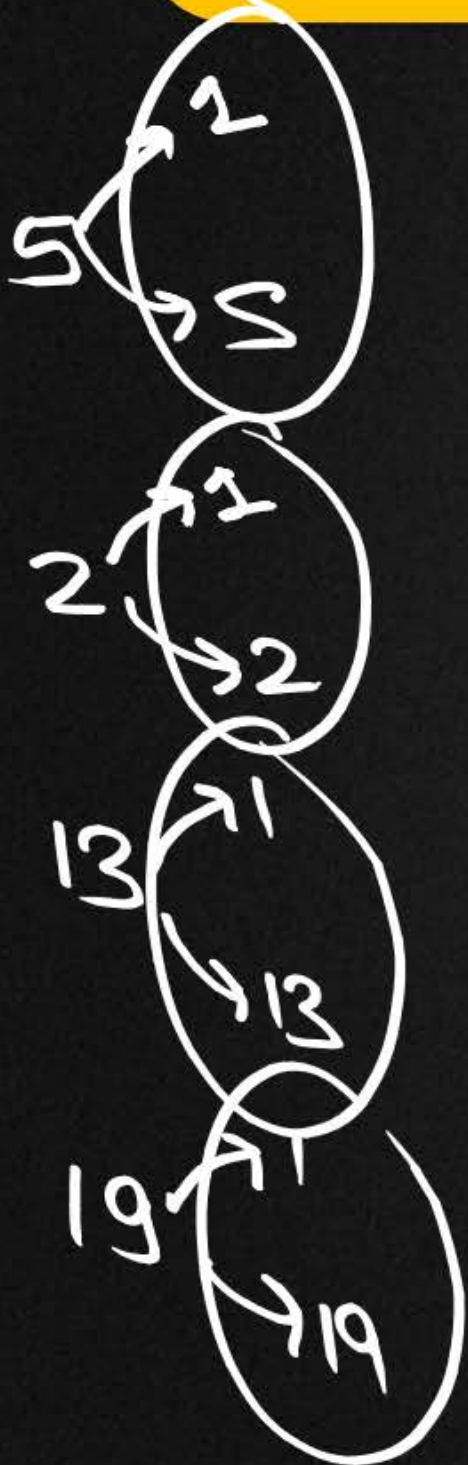
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#Q. Find the prime factorization the LCM of the numbers 18180 and 7575. Also, find the HCF of the two numbers.

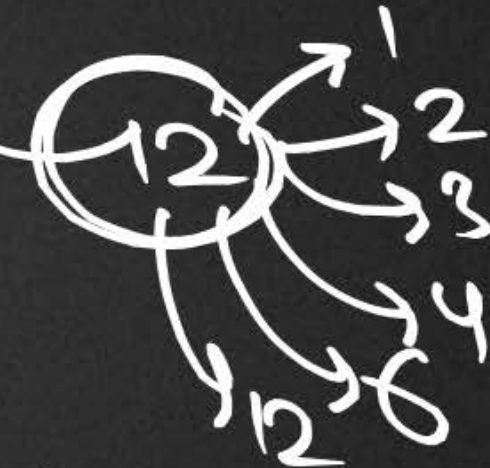
CBSE 2023

Prime Numbers

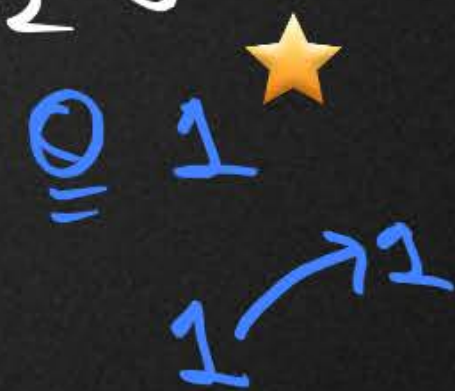
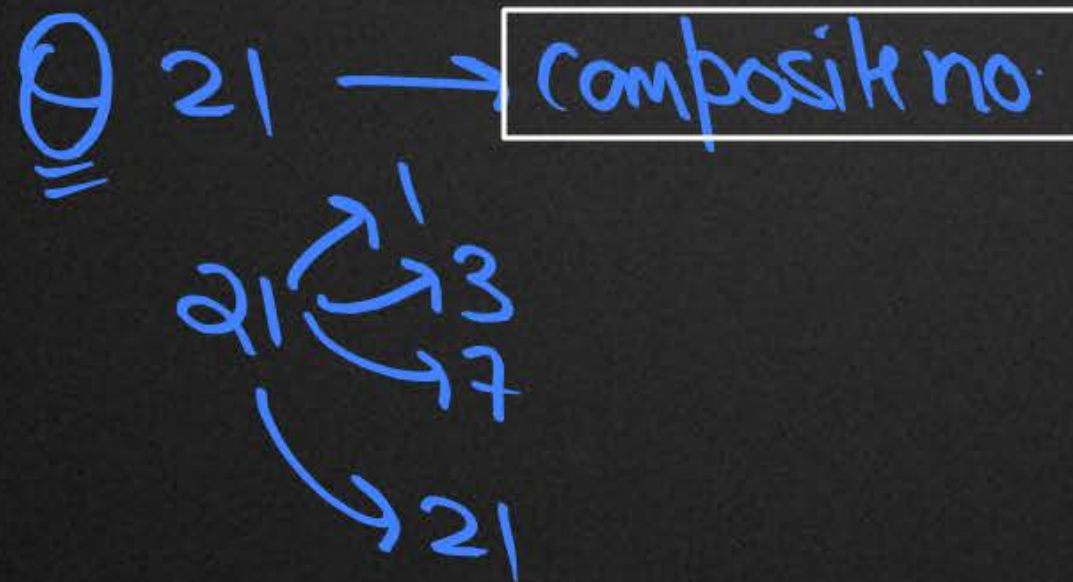


only two factors.

Composite Numbers



more than 2 factors



neither prime nor composite

QUESTION

CBSE

$$\{-\infty, \dots, -2, -1, 0, 1, 2, 3, 4, 5, \dots, \infty\}$$



#Q. If two positive integers a and b are expressible in the form $a = pq^2$ and $b = p^3q$, p, q being prime numbers, then $\text{LCM}(a, b)$ is:

$$\begin{aligned} a &= pq^2 = p^1 \times q^2 \\ b &= p^3q = p^3 \times q^1 \end{aligned}$$

$$\text{HCF}(a, b) = p^1 \times q^1 = pq$$

$$\text{LCM}(a, b) = p^3 \times q^2 = p^3q^2$$

A pq

B p^3q^3

☒ C p^3q^2

D p^2q^2

QUESTION



#Q. Let x and y be two distinct prime numbers and $p = x^2 y^3$, $q = xy^4$, $r = x^5 y^2$.

Find the HCF and LCM of p , q and r .

CBSE 2025

$$\begin{aligned} p &= x^2 \times y^3 \\ q &= x^1 \times y^4 \\ r &= x^5 \times y^2 \end{aligned}$$

$$\text{HCF}(p, q, r) = x^1 y^2 = xy^2$$

$$\text{LCM}(p, q, r) = x^5 y^4$$

QUESTION



#Q. If $x = ab^3$ and $y = a^3b$, where a and b are prime numbers, then $[HCF(x, y) - LCM(x, y)]$ is equal to:

CBSE 2025

$$HCF(x, y) = ab$$

$$LCM(x, y) = a^3b^3$$

$$= ab - a^3b^3$$

$$= ab(1 - a^2b^2)$$

$$= ab[1^2 - (ab)^2]$$

$$x^2 - y^2 = (x - y)(x + y)$$

$$= ab[1 - ab][1 + ab]$$

A $1 - a^3b^3$

B $ab(1 - ab)$

C $ab - a^4b^4$

D $ab(1 - ab)(1 + ab)$

QUESTION

#GPN



#Q. If $a = 2^2 \times 3^x$, $b = 2^2 \times 3 \times 5$, $c = 2^2 \times 3 \times 7$, and $\text{LCM}(a, b, c) = 3780$,
then $x =$

A 0

B 1

C 2

D 3

20h
10h

10h

5 lectures

10h

20h
2 chapters
1 Mahina

Thank
You