

# **LCM & HCF**

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# LCM- Least Common Multiple

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LCM of given numbers X,Y,Z is the Least number which is exactly divisible by all the given numbers X,Y,Z.

OR we can say it is the least multiple of all the given numbers.

For e.g.  $12 = 12, 24, 36, 48, 60, 72, 84, 96, \dots$

$16 = 16, 32, 48, 64, 80, 96, \dots$

So there are lots of multiple of 12 and 16 which will be common but the least multiple which is common is 48. That is the LCM of 12 and 16.

**Question:** Find the least number which is exactly divisible by 9, 12 and 15.

a) 150

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b) 180

c) 120

d) 90

**Answer:** B

**Question:** 6 bells of a church toll at different intervals of 5 seconds, 6 seconds, 8 seconds, 10 seconds, 12 seconds and 15 seconds respectively. If they toll together at 12 noon, how many times will they toll together till 1 PM.

- a) 15 times
- b) 20 times
- c) 31 times
- d) None of these

**Question:** A, B, C start running at the same time and at the same point in the same direction in circular stadium. A completes a round in 252 sec, B in 300 sec, and C in 198 sec. After what time will they meet again at the starting point?

- a) 1550 minutes
- b) 1155 minutes
- c) 1150 minutes
- d) 1555 minutes

**Question :** In a circular race, A completes 1 round in 15 minutes and B completes 1 round in 25 minutes. After making how many rounds will A meet B again at the starting point, if they start running together from the starting point?

- a) 3
- b) 5
- c) 6
- d) 2.5

# HCF- Highest Common Factor

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HCF of given numbers X,Y,Z is the greatest number which exactly divides all the given numbers X,Y,Z. Sometimes called **Greatest Common divisor(G.C.D.)**

For e.g.  $12 = 1, 2, 3, 4, 6, 12$

$16 = 1, 2, 4, 8, 16$

So there three common factor=1, 2, 4 but the Greatest factor is 4. That is the HCF of 12 and 16.

**Question :** What is the maximum possible length of a thread required to exactly measure 352 cm, 220 cm and 308 cm.

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- a) 22
- b) 44
- c) 11
- d) 88

**Question :** HCF of two number is 13. If these two numbers are in the ratio of 15:11, then find the numbers.

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- a) 230, 140
- b) 215,130
- c) 195, 143
- d) 155, 115

**Question :** If HCF and LCM of two number are 17 and 408. How many such pairs are possible?

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- a) 2
- b) 3
- c) 4
- d) 5

$$\text{HCF of Fraction} = \frac{\text{HCF of numerators}}{\text{LCM of Denominator}}$$

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$$\text{LCM of Fraction} = \frac{\text{LCM of numerators}}{\text{HCF of Denominator}}$$

**Question :** Find HCF of  $\frac{2}{4}, \frac{10}{8}, \frac{4}{12}, \frac{6}{15}$

a)  $\frac{1}{60}$

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b) 12

c)  $\frac{2}{56}$

d)  $\frac{4}{60}$

**Question :** Find LCM of  $\frac{2}{3}, \frac{8}{9}, \frac{64}{81}, \frac{10}{27}$

a)  $\frac{250}{9}$

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b)  $\frac{160}{3}$

c)  $\frac{128}{9}$

d)  $\frac{320}{3}$

**Product of Two numbers = HCF × LCM**

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**Question:** HCF of two number 11 is and their LCM is 7700. If one of the number is 275 then find the other.

- a) 300
- b) 308
- c) 375
- d) 395

# LCM Word Problems

Question	Answer
The Least number which is exactly divisible by x, y and z	$\text{LCM}(x, y, z)$
The least number which when divided by x, y, z leaves the same remainder R in each case	$\text{LCM } (x, y, z) + R$
The least Number which when divided by x, y and z, leaves remainder a, b and c respectively	$\text{LCM } (x, y, z)-K$ Where $K=(x-a)=(y-b)=(z-c)$

# HCF Word Problems

Question	Answer
The greatest number that will exactly divide x, y and z	$\text{HCF}(x, y, z)$
The greatest number that will divide x, y, z and leaves remainder R in each case	$\text{HCF}(x-y, y-z, z-x)$ OR $\text{HCF}(x-R, y-R, z-R)$
The greatest Number that will divide x, y and z, leaving remainder a, b and c respectively	$\text{HCF}(x-a, y-b, z-c)$