



# CLASS - 10

## MATHEMATICS

### CH-1 : Real Numbers

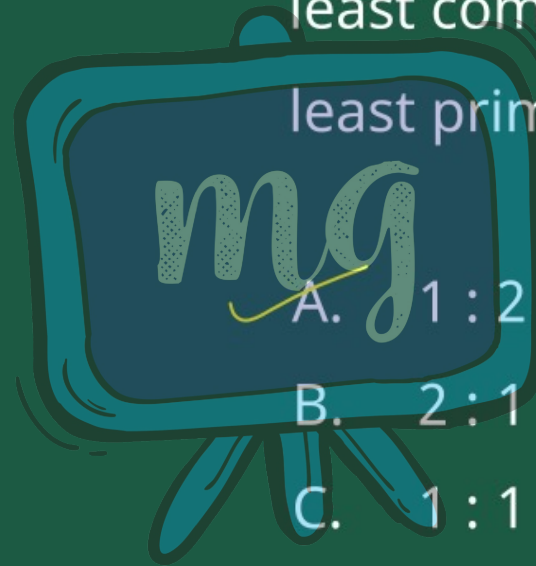
CBSE Board

Previous Year Questions

Shubham Tiwari

1. The ratio of H.C.F to L.C.M of the least composite number and the least prime number is:

(CBSE DL 2023)



A. 1 : 2

B. 2 : 1

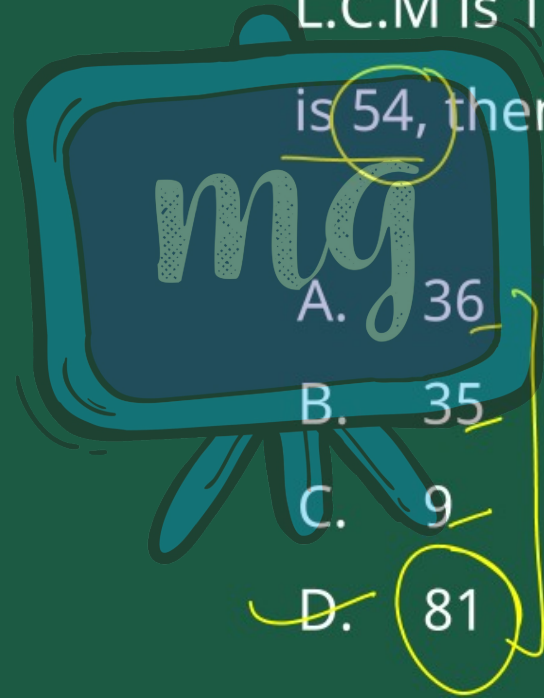
C. 1 : 1

D. 1 : 3

$$\begin{array}{l} 4, 2 \\ \hline \text{HCF} = 2 \\ \text{LCM} = 4 \end{array} \quad \frac{1}{2}$$

2. H.C.F of two numbers is 27 and their L.C.M is 162. If one of the numbers is 54, then other number is :

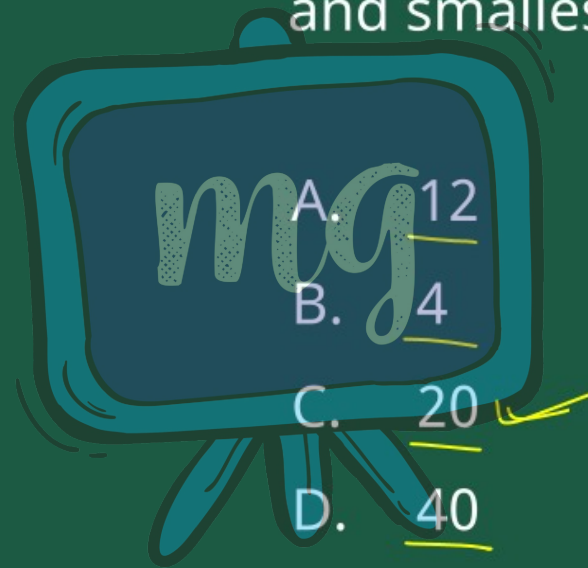
(CBSE 2020)



a      b

3. The L.C.M of smallest 2-digit number  
and smallest composite number is:

(CBSE ODL 2023)



10, 4

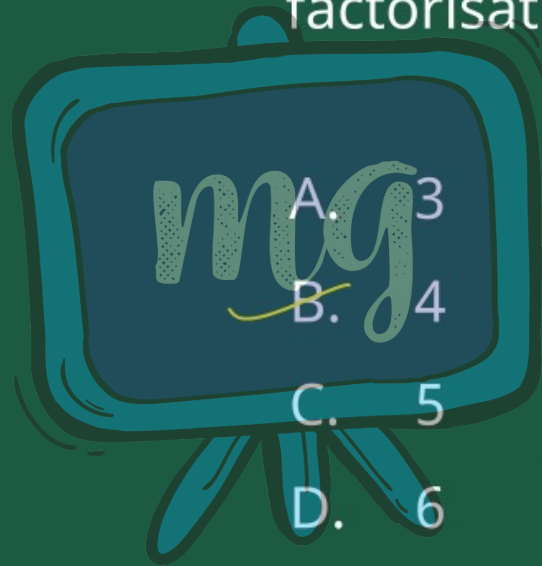
4. What is the greatest possible speed at which a girl can walk 95 m and 171 m in an exact number of minutes?

(CBSE Term-1, 2022)

A. ✓ 17 m/min.  
B. ✓ 19 m/min.  
C. ✗ 23 m/min.  
D. ✗ 13 m/min.

5. The exponent of 5 in the prime factorisation of 3750 is:

(CBSE Term-1, 2022)



5	3750
5	750
5	150
5	30
2	6
3	3
	1

6. Three alarm clocks ring their alarms at regular intervals of 20 min, 25 min and 30 min respectively. If they first beep together at 12 noon, at what time will they beep again for the first time?

(CBSE Term-1, 2022)

- A. 4:00 pm
- B. 4:30 pm
- C. 5:00 pm
- D. 5:30 pm

20, 25, 30

$$\left. \begin{aligned} 20 &= 5 \times 4 \\ 25 &= 5 \times 5 \\ 30 &= 5 \times 6 \end{aligned} \right\}$$



$$\underline{300} = 5 \times \underline{60}$$

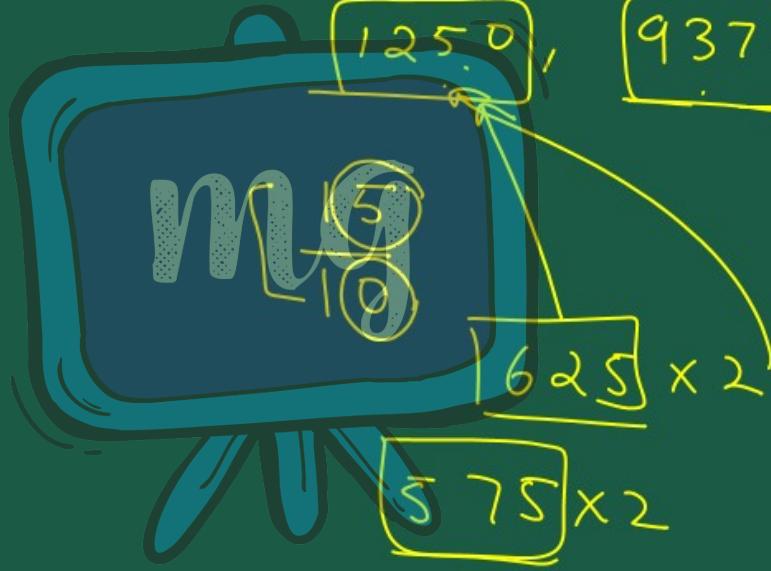
2	4, 5, 6
2	2, 5, 3
5	1, 5, 3
3	1, 1, 3
	1, 1, 1

$$\frac{300 \text{ min}}{60} = \underline{5 \text{ hours}}$$



1251, 9377, 15628  
-1, -2, -3

1250, 9375, 15625  
0

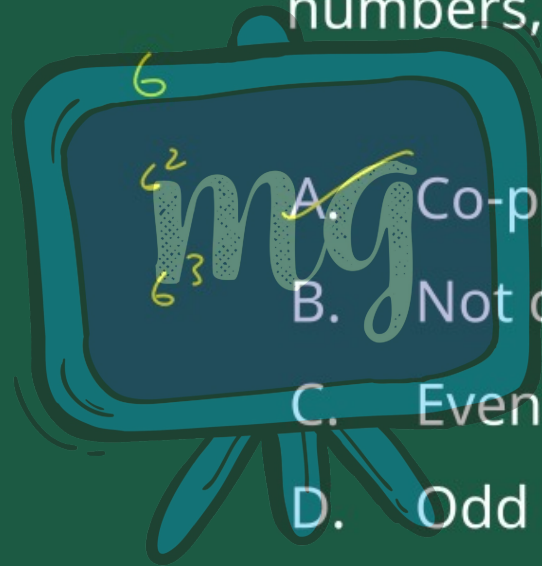


225  
50  
5

8. If  $a$  and  $b$  are two co-prime numbers, then  $a^3$  and  $b^3$  are:

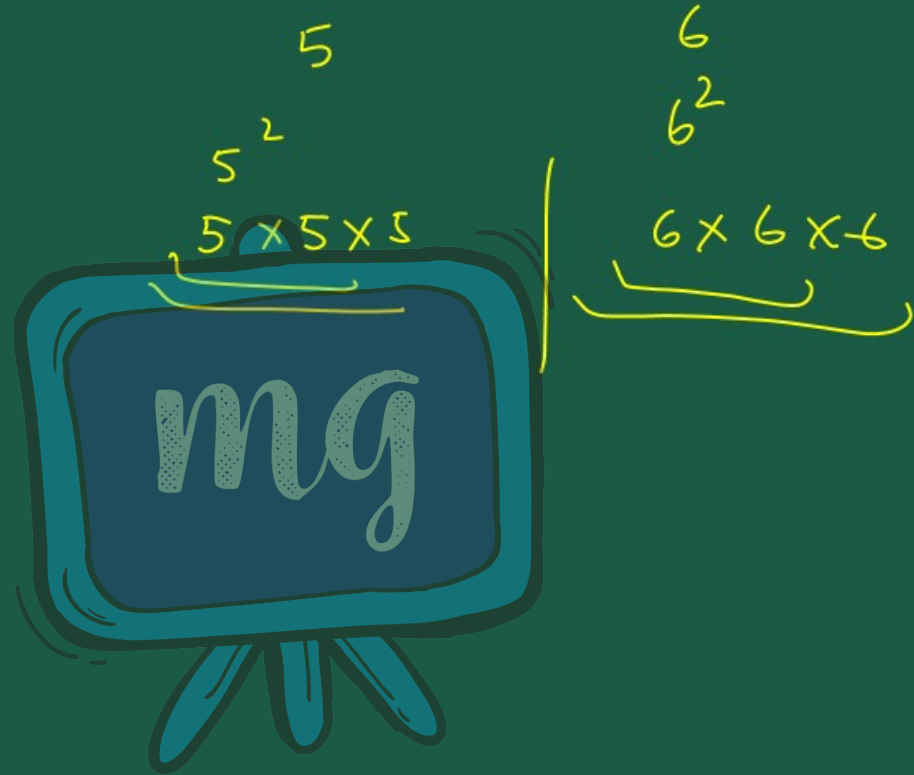
(CBSE Term-1, 2022)

5  
5<sup>2</sup>  
5<sup>3</sup>



- A. Co-prime
- B. Not co-prime
- C. Even
- D. Odd

$a, b$



9. The L.C.M of two numbers is 2400.

Which of the following cannot be

their H.C.F?

(CBSE Term-1, 2022)

Handwritten calculations and options:

$\frac{2400}{600} = 4$

$\frac{2400}{800} = 3$

$\frac{2400}{400} = 6$

$\frac{2400}{300} = 8$

$\frac{2400}{500} = 4.8$

Options:

- A. 300
- B. 400
- C. 500
- D. 600

The number 500 is circled in red, indicating it is the correct answer.

Handwritten formula:

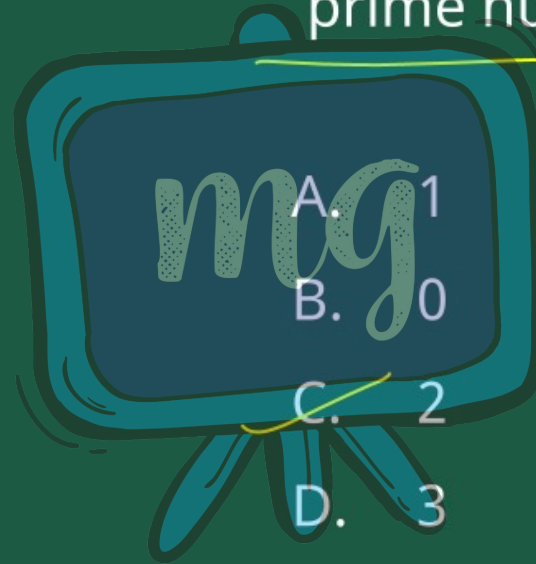
$$HCF \times ( ) = LCM$$

Diagram showing the relationship between LCM and HCF:

$LCM = HCF \times ( )$

10. The total number of factors of a  
prime number is:

(CBSE DL 2020)



35  
70  
140  
12

11. The H.C.F and the L.C.M of 12, 21, 15 respectively are:

- A. 3, 140 X
- B. 12, 420 X
- C. 3, 420 ✓
- D. 420, 3 X

(CBSE DL, 2020)

$$\begin{aligned} 12 &= 3 \times 4 \\ 21 &= 3 \times 7 \\ 15 &= 3 \times 5 \end{aligned}$$

↓

H.C.F = 3

$$\begin{array}{r} 35 \\ \underline{420} \\ 12 \end{array}$$

$$\begin{array}{r} 20 \\ \underline{420} \\ 21 \end{array}$$

$$\begin{array}{r} 28 \\ \underline{420} \\ 15 \end{array}$$



12. If H.C.F. (336, 54) = 6, find L.C.M  
(336, 54).

(CBSE ODL 2019)



$$\text{H.C.F} \times \text{L.C.M} = a \times b$$

$$6 \times \text{L.C.M} = \frac{336 \times 54}{9}$$

$$\text{L.C.M} = \frac{336 \times 54}{6}$$

$$\text{L.C.M} = 336 \times 9$$

$$LCM = 3^5 \times 3 \times 6 \times 9$$

$$LCM = 3024$$



Hence the  $LCM (336, 54) = 3024$

13. What is the H.C.F of smallest prime number and the smallest composite number?

(CBSE 2018)

Soln. Smallest prime No. = 2

Composite NO. = 4

$$HCF(2, 4) =$$

$$2 = 2^1$$

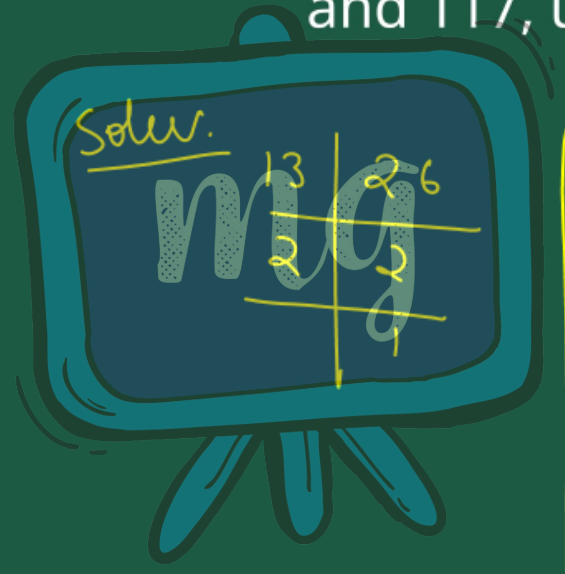
$$4 = 2^2$$

$$HCF = 2^1$$

$$HCF = 2$$

14. Find the H.C.F. and L.C.M. of 26, 65 and 117, using prime factorization.

(CBSE ODL 2023)



5	65
13	13
	1

13	117
3	9
3	3
	1

$$26 = 13 \times 2$$

$$65 = 13 \times 5$$

$$117 = 13 \times 3^2$$

HCF = 13

LCM =

13	26, 65, 117
2	2, 5, 9
5	1, 5, 9
3	1, 1, 9
3	1, 1, 3
	1, 1, 1

$$13 \times 2 \times 5 \times 3^2$$

$$13 \times 9 \times 10$$

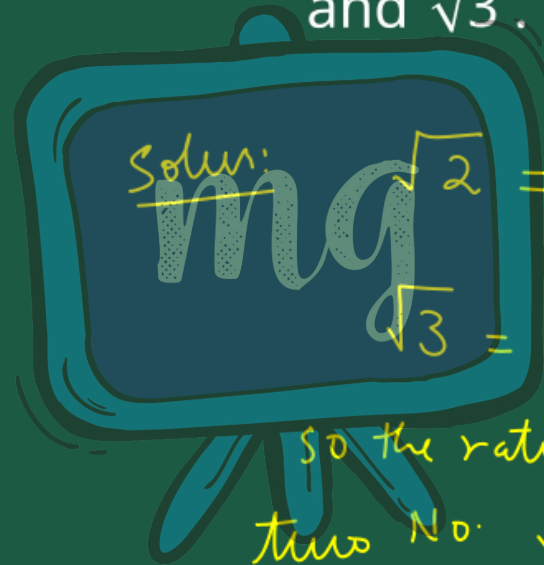


$$Lcm = 1170$$

mg

15. Find a rational number between  $\sqrt{2}$  and  $\sqrt{3}$ .

(CBSE DL 2019)



Solus:  $\sqrt{2} = 1.414 \dots$

$\sqrt{3} = 1.732 \dots$

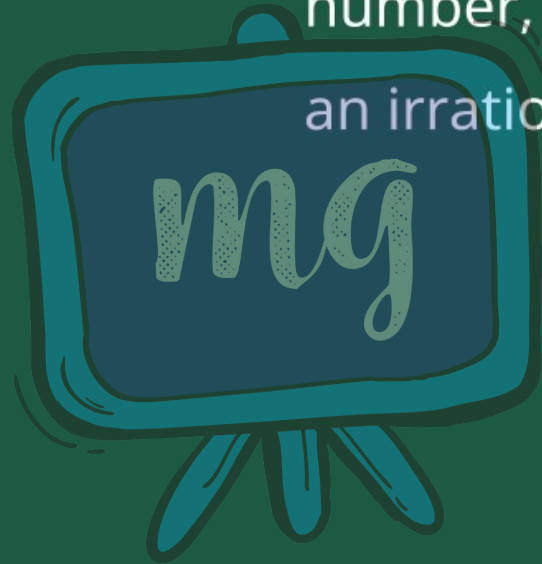
So the rational No. between the two No.  $\sqrt{2}$  and  $\sqrt{3}$ , can be 1.5 also written as  $\frac{3}{2}$ .

16. Prove that  $\sqrt{3}$  is an irrational number.

(CBSE 2019)



17. Show that  $5 + 2\sqrt{7}$  is an irrational number, where  $\sqrt{7}$  is given to be an irrational number.



(CBSE 2020)

18. Prove that  $\sqrt{5}$  is an irrational number.

(CBSE 2009, 2010, 2023)



19. Show that  $\frac{3+\sqrt{7}}{5}$  is an irrational number, given that  $\sqrt{7}$  is irrational.  
(CBSE 2019)

