

HCF & LCM Solved Sums

1 . The least common multiple of 24 , 36 , and 40 is

A) 340 b) 360 c) 230 d) 400

Answer :

2	24	36	40	=> 2 X 2 X 2 X 3 X 1 X 3 X 5
2	12	18	20	=> 360
2	6	9	10	
3	3	9	5	
	1	3	5	

Ans : 360

2 . The LCM of 148 and 185 is

A) 690 b) 760 c) 740 d) 1050

Answer:

2	148	185	2X2X37X5 => 740
2	74	185	
37	37	185	
	1	5	

Ans : 740

3 . Find the LCM of 8 , 15 , 24 and 72

Answer :

2	8	15	24	72	
2	4	15	12	36	2x2X2X3X5X3 => 360
2	2	15	6	18	
3	1	15	3	9	
	1	5	1	3	

Answer : 360

4 . HCF of 513 and 1134 is

A) 9 b) 81 c) 27 d) 31

Answer :

$$\begin{array}{r}
 1134 \\
 1026 \\
 \hline
 108
 \end{array}
 \begin{array}{r}
 513 \\
 432 \\
 \hline
 81
 \end{array}
 \begin{array}{r}
 4 \\
 1 \\
 3 \\
 0
 \end{array}$$

[when reminder is zero,at that time divisor is HCF]

Answer : 27

5 . The HCF of 3556 and 2444 is

A) 28 b) 38 c) 43 d) 18

Answer :

$$\begin{array}{r}
 3556 \\
 3444 \\
 \hline
 112
 \end{array}
 \begin{array}{r}
 3444 \\
 3360 \\
 \hline
 84
 \end{array}
 \begin{array}{r}
 1 \\
 2 \\
 1 \\
 3 \\
 0
 \end{array}$$

HCF = 28

Answer : 28

6 . The LCM and HCF of two numbers are 45 and 3 respectively . their sum is 24 what is their difference ?

A) 2 , b) 4 , c) 6 d) 8

Answer :

$$A \times B = \text{LCM} \times \text{HC}$$

$$\Rightarrow ab = 45 \times 3 = 135 \Rightarrow ab = 135 \rightarrow 1$$

$$A + b = 24 \Rightarrow b = 24 - a \rightarrow 2$$

Substitute 2 equ in 1equ

$$\Rightarrow A(24 - a) = 135 \Rightarrow 24a - a^2 = 125$$

$$\Rightarrow A^2 - 24a + 135 = 0 \Rightarrow (a - 9)(a - 15) = 0$$

A = 9 B = 15 difference = 6

Answer : 6

7 . The product of two members is 4107 and their HCF is 37.The large number is

A) 185 B) 111 c) 187 d) 101

Answer :

$$A \times B = \text{LCM} \times \text{HCF}$$

$$\Rightarrow 4107 = \text{LCM} \times 37 \Rightarrow \text{LCM} = \frac{4107}{37} = 111$$

$$\Rightarrow a = 111, b = 37, \text{ (or) } a = 37, b = 111$$

$$\Rightarrow \text{Large X number} = 111$$

Answer : 111

8 . The LCM of two numbers is 495 and their HCF is 5 . If the sum of the two numbers is 100 , then Find the differene of the numbers

A) 10 b) 46 c) 70 d) 90

Answer :

$$A \times B = \text{LCM} \times \text{HCF}$$

$$A \times B = 495 \times 5 \Rightarrow ab = 2475 \rightarrow 1$$

$$\Rightarrow A + B = 100 \rightarrow 2 \Rightarrow b = 100 - a$$

$$\Rightarrow A \times (100 - a) = 2475 \Rightarrow a^2 - 100a + 2475 = 0$$

$$\Rightarrow A = 55 \text{ (OR) } a = 45$$

$$\Rightarrow B = 100 - 55 = 45 \quad b = 45, \quad a = 55$$

Difference = 10

Ans : 10

9 . The LCM of two numbers is 48 . The numbers are in the ratio 2 : 3 the sum of the numbers is ?

A) 35 , b) 40 , c) 60 d) 111

Answer : ratio = $2x : 3x$

$$\Rightarrow \begin{array}{c|cc} x & 2x & 3x \\ \hline & 2 & 3 \end{array} \Rightarrow 6x = \text{LCM}$$

$$\Rightarrow 6x = 48 \quad x = 8$$

Two numbers = $> 2 \times 8 : 3 \times 8$

$$= > 16 : 24$$

$$= > \text{sum} = 16 + 24 = 40$$

Answer : 40

10 . Three numbers are in the ratio 1 : 2 : 3 and their HCF is 12 . The numbers are

A) 4 , 8 , 12 b) 5 , 10 , 15 c) 10 , 20 , 30 d) 12 , 24 , 36

Answer :

Ratio = $1x : 2x : 3x$

$$\Rightarrow \text{Find HCF } x \begin{array}{c|ccc} & 1x & 2x & 3x \\ \hline & 1 & 2 & 3 \end{array} \quad \text{HCF} = x$$

$$\Rightarrow \text{Therefore } x = 12$$

$$\Rightarrow \text{Numbers are } 1 \times 12 : 2 \times 12 : 3 \times 12$$

$$= > 12, 24, 36$$

Ans : 12 , 24 , 36

11 . The ratio of two numbers is 3 : 4 and their HCF is 4 then LCM is

A) 12 b) 16 c) 24 d) 48

Answer :

Ratio $3x : 4x$

$$\Rightarrow x \begin{array}{r|l} 3x & 4x \\ \hline 3 & 4 \end{array} \quad x \Rightarrow 4$$

$$\Rightarrow 3 \times 4 : 4 \times 4$$

$$\Rightarrow 12 : 16 \Rightarrow \text{Find LCM} \quad 2 \begin{array}{r|l} & 12, 16 \\ \hline & \end{array}$$

$$\Rightarrow 2 \times 2 \times 3 \times 4 = 48 \quad 2 \begin{array}{r|l} & 6 \quad 8 \\ \hline & \end{array}$$

$$\text{Ans : } 48 \quad 3 \quad 4$$

12. The the greatest number that will divide 43 , 91 , & 183 so as to leave the same remain in each care

A) 4 b) 7 c) 9 d) 13

Answer :

$$\Rightarrow (183 - 43) , (183 - 91) , (91 - 43)$$

$$\Rightarrow \text{HCF of } (140, 92, 48)$$

$$\Rightarrow \text{HCF of} \quad 4 \begin{array}{r|l} & 140 \quad 92 \quad 48 \\ \hline & 35 \quad 23 \quad 12 \end{array}$$

HCF : 4

Ans : 4

13. The greatest number of 4 digits which is divisible by 20 , 25 , 40 and 75 is

A) 9600 b) 2000 c) 9800 d) 3540

Answer :

$$\begin{array}{r|l} 2 & 20 \quad 25 \quad 40 \quad 75 \\ \hline 2 & 10 \quad 25 \quad 20 \quad 75 \\ \hline 5 & 5 \quad 25 \quad 10 \quad 75 \\ \hline 5 & 1 \quad 5 \quad 2 \quad 15 \\ \hline & 1 \quad 1 \quad 2 \quad 3 \end{array}$$

$$\Rightarrow 2 \times 3 \times 5 \times 2 \times 2$$

$$\Rightarrow \text{LCM} = 600$$

$$\Rightarrow \text{Large number is 4 digit is} = 9999$$

$$\Rightarrow 9999/600 = 16 \text{ times} \quad \text{remainder} = 399$$

$$\Rightarrow 9999 - 399 = 9600$$

Ans : 9600

14 . Find the greatest number of 4 digit which is divisible by 15 , 25 , 40 , 75

A) 900 b) 9400 c) 9600 d) 9300

Answer:

2	15	25	40	75
2	15	25	20	75
5	15	25	10	75
5	3	5	2	15
3	3	1	2	3
	1	1	2	1

$$\Rightarrow 2 \times 2 \times 5 \times 5 \times 2 \times 3$$

$$= > \text{LCM} = 600$$

$$\Rightarrow \text{Greatest number of 4 digit} = 9999$$

$$= > 9999/600 = 16 \text{ times} \quad \text{remainder} = 399$$

$$\Rightarrow 9999 - 399 = 9600$$

Ans : 9600

15 . The greatest number of 4 digit which is divisible by 25 , 20 , 60 and 100 is

A) 2000 b) 4000 c) 5000 d) 2600

Answer :

2	20	25	60	100
2	10	25	30	50
5	5	25	15	25
5	1	5	3	5
	1	1	3	1

$$= > 2 \times 2 \times 3 \times 5 \times 5$$

$$= > \text{LCM} = 300$$

$$\Rightarrow \text{Find the which answer is divisible correctly}$$

And larger 4 digit number

$$\Rightarrow 6000/300 = 20 \quad \text{remainder} = 0$$

Ans : 6000

16 . Find the smallest number which when diminished by 7 , is divisible by 12 , 16 , 18 , 21 and 28 .

Answer :

2	12	16	18	21	28
2	6	8	9	21	14
2	3	4	9	21	7
3	3	2	3	7	7
7	1	2	1	7	7
	1	2	1	1	1

$$\Rightarrow 2 \times 2 \times 2 \times 2 \times 3 \times 7 = 1008$$

$$= 1008 + 7 = 1015$$

Ans : 1015

17 . Six bells commence tolling together , afterwards they toll at intervals of 2 , 4 , 6 , 8 , 10 , 12 seconds respect respectively . In 30 minutes how many times do they toll together ?

A) 4 b) 10 c) 15 d) 16

Answer :

2	2	4	6	8	10	12
2	1	2	3	4	5	6
3	1	1	3	2	5	3
	1	1	1	2	5	1

$$\Rightarrow 2 \times 2 \times 2 \times 3 \times 5$$

$$\Rightarrow \text{LCM} = 120 \text{ sec}$$

$$\Rightarrow 120 \text{ sec} = 2 \text{ min} \Rightarrow 30/2 = 15 \text{ time}$$

$$\Rightarrow 15 + 1 \rightarrow \text{first 2 second} \Rightarrow 15 + 1 = 16$$

Ans : 16

18 . Find the least common multiple of $4/5$, $3/10$, and $7/15$

A) $84/5$, b) $5/84$, c) $2/15$ d) $12/15$

Answer :

LCM of divided
HCF of divisor

$$\Rightarrow \text{LCM} = 4 \times 3 \times 7 = 84$$

$$\text{HCF} = 5, 10, 15 = 5 \Rightarrow 84/5$$

Ans : 84/5

19. The LCM of $1/3, 5/6, 2/9, 4/27$ is

A) $1/59$, b) $10/27$ c) $20/3$ d) non of these

LCM of divided
HCF of divisor

$$\Rightarrow \begin{array}{c|cccc} 2 & 1 & 5 & 2 & 4 \\ \hline & 1 & 5 & 1 & 2 \end{array} \Rightarrow 2 \times 5 \times 2 = 20$$

$$\Rightarrow \text{HCF of } 3, 6, 9, 27 = > 3$$

Ans : 20/3

20. Find the HCP of $4/9, 2/5, 6/8, 2/5$ is

A) $1/180$ b) $2/481$ c) $2/350$ d) $1/142$

Answer :

LCM of divided
HCF of divisor

$$\Rightarrow \text{HCF of } 4, 2, 6, 2 \Rightarrow 2$$

$$\Rightarrow \text{LCM of } 9, 5, 8, 5$$

$$\begin{array}{c|cccc} 5 & 9 & 5 & 8 & 5 \\ \hline 2 & 9 & 1 & 8 & 1 \\ \hline 2 & 9 & 1 & 4 & 1 \\ \hline 3 & 9 & 1 & 2 & 1 \\ \hline & 3 & 1 & 2 & 1 \end{array} \Rightarrow 5 \times 2 \times 2 \times 2 \times 3 \times 3$$

$$\text{LCM} = 60$$

$$\Rightarrow 2/360 \Rightarrow 1/180$$

Ans : 1/180

21. The HCF of two numbers is 8, which one of the following can never be their LCM ?

a) 24 b) 48 c) 56 d) 60

Answer :

- ⇒ The HCF of two numbers is 1, 8
- ⇒ This mean 8 is a factor common to both the numbers .
- ⇒ LCM is common multiple for the two numbers.
- ⇒ 24 , 48 , 56 is divided by 8
- ⇒ 60 not divided by 8 => then 60 is correct

Ans : 60

22 . The product of the two numbers is 900 . If the LCM of these two numbers is 300, then Find HCF ?

Answer :

$$A \times B = \text{LCM} \times \text{HCF}$$

$$\Rightarrow 900 = 300 \times \text{HCF} \Rightarrow \text{HCF} = 3$$

Ans : 3

23 . The product of two co- prime number is 117 . Their least common multiple is

A) 351 b) 234 c) 39 d) 117

Answer :

[HCF of two co-prime is = 1]

$$\Rightarrow \text{HCF of 117 is} = 1$$

$$\Rightarrow \text{The LCM is} = 117/1$$

Ans : 117

24 . Two numbers are in the ratio 3 : 4 and the product of their LCM and HCF is 10800. The sum of the number is

A) 180 b) 210 c) 825 d) 240

Answer :

Ratio 3x : 4x

$$\Rightarrow 3x \times 4x = 10800$$

$$\Rightarrow 12x^2 = 10800 \Rightarrow x^2 = 10800/12$$

$$\Rightarrow x^2 = 900 \Rightarrow x = 30$$

$$=> 3 \times 30 : 4 \times 30 \Rightarrow 90 : 120$$

$$\text{Sum} = 90 + 120 = 210$$

Ans : 210

25 . Three numbers are in the ratio 1 : 2 : 3 their heihier common factor is 12 . Find the numbers

A) 12 , 24 , 36 b) 4 , 48 , 72 c) 12 , 24 , 48 d) 48 , 60 , 72

Answer :

Ratio 1x : 2x : 3x

$$\text{Find HCF} \Rightarrow \begin{array}{ccc|c} 1x & 2x & 3x & \text{HCF} = x \\ \hline 1 & 2 & 3 & \end{array}$$

Then $x = 12$

\Rightarrow Ratio 12 : 24 : 36

Ans : 12 , 24 , 36

26 . Two numbers are in the ratio of 2 : 3 and the product of their highest common factor and least multiple is 150 , then Find the sum of the number is ,

A) 5 b) 10 c) 20 d) 25

Answer :

Ratio 2x : 3x

$$\Rightarrow 2x \times 3x = 150$$

$$\Rightarrow 6x^2 = 150 \Rightarrow x^2 = 150/6 = x^2 = 25$$

$$\Rightarrow x = 5$$

\Rightarrow Ratio 10 : 15

$$\Rightarrow \text{sum } 10 + 15 = 25$$

Ans : 25

27 . Find The least number which when divided by 5 , 6 , 7 and 8 leaving a remainders 3 but when divided by 9 leaves no remainders ?

Answer :

\Rightarrow Find LCM of 5 , 6 , 7 and 8

$$\Rightarrow 5 \times 6 \times 7 \times 8 = 840$$

$$=> 840 + 3 = 843$$

=> 843 is divided by 9 or not ,

$$8 + 4 + 3 = 15 \Rightarrow 15/9 = \text{remainder} = 1$$

843 is not divided by 9

$$=> 840 \times 2 \times 3 \Rightarrow 1683$$

$$=> 1683 \times 2 + 3 \Rightarrow 1683$$

=> 1683 is divided by 9 or not ,

$$1 + 6 + 8 + 3 = 18 \Rightarrow 18/9 = \text{remainder} = 0$$

1683 is divided by 9

⇒ Then 1683 is correct ans

Ans : 1683 .

28 . The greatest number that will divide 137 , 182 and 422 leaving a remainder 2 in each case is 422 leaving a remainder 2 in each case is

A) 15 b) 21 c) 12 d) 22

Answer :

$$=> 137 - 2 , 182 - 2 , 422 - 2$$

$$=> 135 \quad 180 \quad 420$$

⇒ Then find the HCF of 135 , 180 , 420

3	135	180	420	=> HCF = 3 X 5
5	45	60	140	
	9	12	28	

HCF = 15

Ans : 15

29 . The greatest number which of dividing 1657 and 2032 leaves remainders 6 and 5 respectively .

Answer :

$$=> 1657 - 6 = 1651$$

$$=> 2037 - 5 = 2032$$

⇒ The find HCF of 2032, 1651

$$\begin{array}{r}
 1651 \overline{) 2032} \quad 1 \\
 \underline{1651} \\
 381 \quad 1651 \quad 4 \\
 \underline{1524} \\
 127 \quad 381 \quad 3 \\
 \underline{381} \\
 0
 \end{array}$$

HCF = 127

Ans : 127

30 . What is the largest number by which when 2109, 2790 and 3471 divided then 1, 2, 3 are obtained as remainder respectively ?

A) 48 b) 68 c) 38 d) 86

Answer :

$$= > 2109 - 1 = 2108$$

$$= > 2790 - 2 = 2788$$

$$= > 3471 - 3 = 3468$$

⇒ Find the HCF of 2108, 2788, 3468

$$\begin{array}{r}
 2788 \overline{) 3468} \quad 1 \\
 \underline{2788} \\
 680 \quad 2788 \quad 4 \\
 \underline{2720} \\
 68 \quad 680 \quad 10 \\
 \underline{680} \\
 0
 \end{array}$$

HCF = 68

Ans : 68

$$\begin{array}{r}
 2108 \overline{) 2788} \quad 1 \\
 \underline{2108} \\
 680 \quad 2108 \quad 2 \\
 \underline{2040} \\
 68 \quad 680 \quad 10 \\
 \underline{680} \\
 0
 \end{array}$$

HCF = 68