

# H.C.F & L.C.M. - SOLVED EXAMPLES

## Advertisements

**Q 1 - Compute H.C.F of  $(2^2 * 2^3 * 5 * 7^4)$ ,  $(2^3 * 3^2 * 5^2 * 7^3)$  and  $(2^2 * 5^3 * 7^5)$ .**

A - 6760

B - 6860

C - 6960

D - 7060

**Answer - B**

**Explanation**

Prime numbers which are common to all the given numbers are 2, 5, 7.  
∴ H.C.F =  $(2^2 * 5 * 7^3) = (4 * 5 * 343) = 6860$

**Q 2 - Find the H.C.F of 108, 360 and 600.**

A - 12

B - 13

C - 14

D - 15

**Answer - A**

**Explanation**

$108 = (2^2 * 3^3)$ ,  $360 = (2^3 * 3^2 * 5)$  and  $600 = (2^3 * 5^2 * 3)$   
∴ H.C.F =  $(2^2 * 3) = (4 * 3) = 12$

**Q 3 - Find the H.C.F of 148 and 185.**

A - 37

B - 38

C - 39

D - 40

**Answer - A**

**Explanation**

Remainder of  $185/148 = 37$   
Remainder of  $148/37 = 0$   
∴ H.C.F. = 37

**Q 4 - Find the H.C.F of 204, 1190 and 1445.**

A - 16

B - 17

C - 18

D - 19

**Answer - B**

**Explanation**

Remainder of  $1190/204 = 170$   
Remainder of  $204/170 = 34$   
Remainder of  $170/34 = 0$

$\therefore$  H.C.F. of 204, 1190 = 34

Remainder of  $1145/34 = 17$   
Remainder of  $34/17 = 0$

$\therefore$  H.C.F. of 204, 1190 and 1145 = 17

**Q 5 - Reduce 391/667 to lowest terms.**

A - 7/29

B - 27/29

C - 17/29

D - 37/29

**Answer - C**

**Explanation**

First we find the H.C.F of 391 and 667.

Remainder of  $667/391 = 276$   
Remainder of  $391/276 = 115$   
Remainder of  $276/115 = 46$   
Remainder of  $115/46 = 23$   
Remainder of  $46/23 = 0$

$\therefore$  H.C.F. of 391, 667 = 23

$\therefore \frac{391}{667} = \frac{(391/23)}{(667/23)} = \frac{17}{29}$

**Q 6 - Find the L.C.M of  $(2^2 \cdot 3^2 \cdot 5 \cdot 7)$ ,  $(2^3 \cdot 3 \cdot 5^2 \cdot 7^2)$  and  $(2 \cdot 3 \cdot 7 \cdot 11)$ .**

A - 970200

B - 97020

C - 9702

D - 970

**Answer - A**

**Explanation**

We have L.C.M = product of terms containing highest powers of (2,3,5,7,11)  
=  $(2^3 * 3^2 * 5^2 * 7^2 * 11) = (8 * 9 * 25 * 11 * 49) = 970200$

**Q 7 - Find the L.C.M of 15, 18, 24, 27, 56.**

A - 7260

B - 7360

C - 7460

D - 7560

**Answer - D**

**Explanation**

$$15 = 3 * 5$$

$$18 = 2 * 3 * 3 = 2 * 3^2$$

$$24 = 2 * 2 * 2 * 3 = 2^3 * 3$$

$$27 = 3 * 3 * 3 = 3^3$$

$$56 = 2 * 2 * 2 * 7 = 2^3 * 7$$

$$\text{L.C.M} = \text{product of terms containing highest powers of } (2,3,5,7) = 2^3 * 3^3 * 5 * 7 = 7560$$

**Q 8 - Find the H.C.F and L.C.M of 2/3 , 8/9 , 10/27 and 16/81.**

A - 45

B - 55

C - 65

D - 75

**Answer - D**

**Explanation**

$$\text{H.C.F of } 2, 8, 10, 16 = 2$$

$$\text{L.C.M of } 3, 9, 27, 81 = 81$$

$$\text{H.C.f} = \text{H.C.F of } 2, 8, 10, 16 / \text{L.C.M of } 3, 9, 27, 81 = 2/81$$

$$\text{L.C.M} = \text{L.C.M of } 2, 8, 10, 16 / \text{H.C.F of } 3, 9, 27, 81 = 80/3$$

**Q 9 - Two numbers are in the ratio 8:11 . Considering their H.C.f as 6, find the numbers.**

A - 58.79

B - 48.66

C - 38.56

D - 28.33

**Answer - B**

**Explanation**

Let the numbers be 8x and 11 x. then, their H.C.F = x  
So, the numbers are (8\*6), (11\*6) i.e 48 and 66.

**Q 10 - Given the H.C. F of two numbers as 7 and their L.C.M as 210. If one of the numbers is 35, find the other.**

- A - 32
- B - 42
- C - 52
- D - 62

**Answer - B**

**Explanation**

Let the Other number be X. then,  
Product of numbers = product of their H.C .F and L.C.M  
 $35*x = 7 * 210 \Rightarrow x = 7*210/35 = 42$   
Hence, the other number is 42.

**Q 11 - Three big drums contain 36 liters, 45 liters and 72 liters of oil. What is the biggest measure which can measure all the different quantities exactly?**

- A - 9 liters
- B - 10 liters
- C - 11 liters
- D - 12 liters

**Answer - A**

**Explanation**

Required measure = H.C.F of 36 L, 45 L, and 72 L  
=  $(3^2)$  liters = 9 liters  
[As  $36 = 2^2 * 3^2$ ,  $45 = 3^2 * 5$  and  $72 = 2^4 * 3^2$ ]

**Q 12 - Four electronic devices make a beep after duration of 30 minutes, 1 hour, 3/2 hours and 1 hour 45 min. respectively. If all the devices beeped together at 12 noon at what time will they beep together again?**

- A - 9 am
- B - 10 am
- C - 11 am
- D - 11:30 am

**Answer - A**

**Explanation**

Intervals of beeping 30 min, 60 min, 90 min, 105 min.  
Interval of beeping together = L.C.M of 30 min. 60 min. 90 min. 105 min  
=  $(3*5*2*2*3*7)$  min. = 1260 min = 21 hrs.  
So, they will beep together again next morning at 9 am.

**Q 13 - Find the largest number which can exactly divide 513, 783 and 1107.**

A - 22

B - 23

C - 24

D - 25

**Answer - B**

**Explanation**

Remainder of  $783/513 = 270$

Remainder of  $513/270 = 243$

Remainder of  $270/243 = 27$

Remainder of  $243/27 = 0$

Remainder of  $46/23 = 0$

$\therefore$  H.C.F. of 513, 783 = 23

Remainder of  $1107/23 = 0$

$\therefore$  H.C.F. of 513, 783 and 1107 = 23

**Q 14 - Find the smallest number which is exactly divisible by each one of the numbers 12, 15, 20 and 27.**

A - 540

B - 530

C - 520

D - 510

**Answer - A**

**Explanation**

Required no. = L.C.M of 12, 15, 20 and 27

=  $(3 \times 2 \times 2 \times 5 \times 9) = 540$

**Q 15 - Find the least number which if divided by 6, 7, 8, 9, 12 leaves the same remainder 2 in each case.**

A - 506

B - 504

C - 502

D - 500

**Answer - A**

**Explanation**

Required number = (L.C.M of 6, 7, 8, 9, 12) + 2 =  $(2 \times 3 \times 2 \times 7 \times 2 \times 3) + 2 = (504 + 2) = 506$ .

**Q 16 - Find the largest natural number which can divide the product of any 4 consecutive natural numbers.**

A - 23

B - 24

C - 25

D - 26

**Answer - B**

**Explanation**

$(1*2*3*4) = 24$   
 $\therefore$  Required number = 24

**Q 17 - Find the least number which if divided by 35, 45 and 55 leaves the remainder 18, 28 and 38 respectively.**

A - 3448

B - 3458

C - 3468

D - 3478

**Answer - A**

**Explanation**

Here  $(35-18) = 17$  ,  $(45-28) = 17$  and  $(55-38) = 17$   
Required number = (L.C.M of 35, 45, 55) - 17 =  $(3465 - 17) = 3448$

**Q 18 - The H.C.F of  $1/2$  ,  $2/3$  ,  $3/4$  ,  $4/5$  is**

A -  $1/120$

B -  $12/5$

C -  $100/3$

D -  $10/3$

**Answer - A**

**Explanation**

H.C.F = H.C.F of  $1, 2, 3, 4$  / L.C.M of  $2, 3, 4, 5$  =  $1/120$

**Q 19 - The H.C.F of  $2/3$  ,  $8/9$  ,  $10/27$  ,  $32/81$ .**

A -  $160/81$

B -  $160/3$

C -  $2/81$

D -  $2/3$

**Answer - C**

**Explanation**

$$\text{H.C.F} = \text{H.C.F of } 2, 8, 10, 32 / \text{L.C.M of } 3, 9, 27, 81 = 2/81$$

**Q 20 - Which of the following is a pair of Co-primes?**

A - (14, 35)

B - (18, 25)

C - (31, 93)

D - (32, 62)

**Answer - B**

**Explanation**

H.C.F of 18 and 25 is 1.  
 $\therefore$  18 and 25 are co-primes.