Solution   We know that
$$\text{(one number)} \times \text{(the other number)} = (\text{HCF} \times \text{LCM}).$$
Hence, the required number $= \left(\dfrac{23 \times 1449}{161} \right) = 207.$

EXAMPLE 10.   *Can two numbers have 16 as their HCF and 204 as their LCM? Give reason.*

Solution   We know that the HCF of two or more numbers must divide their LCM exactly.

But, 16 does not divide 204 exactly.

So, there can be no two numbers with 16 as their HCF and 204 as their LCM.

EXERCISE 2E

Find the LCM of the numbers given below:

1. 42, 63
2. 60, 75
3. 12, 18, 20
4. 36, 60, 72
5. 36, 40, 126
6. 16, 28, 40, 77
7. 28, 36, 45, 60
8. 144, 180, 384
9. 48, 64, 72, 96, 108

Find the HCF and LCM of

10. 117, 221
11. 234, 572
12. 693, 1078
13. 145, 232
14. 861, 1353
15. 2923, 3239

16. For each pair of numbers, verify that their product = (HCF × LCM).
    (i) 87, 145   (ii) 186, 403   (iii) 490, 1155

17. The product of two numbers is 2160 and their HCF is 12. Find their LCM.

18. The product of two numbers is 2560 and their LCM is 320. Find their HCF.

19. The HCF of two numbers is 145 and their LCM is 2175. If one of the numbers is 725, find the other.

20. The HCF and LCM of two numbers are 131 and 8253 respectively. If one of the numbers is 917, find the other.

21. Find the least number divisible by 15, 20, 24, 32 and 36.

22. Find the least number which when divided by 25, 40 and 60 leaves 9 as the remainder in each case.

23. Find the least number of five digits that is exactly divisible by 16, 18, 24 and 30.

24. Find the greatest number of five digits exactly divisible by 9, 12, 15, 18 and 24.

25. Three bells toll at intervals of 9, 12, 15 minutes. If they start tolling together, after what time will they next toll together?

26. Three boys step off together from the same place. If their steps measure 36 cm, 48 cm and 54 cm, at what distance from the starting point will they again step together?

27. The traffic lights at three different road crossings change after every 48 seconds, 72 seconds and 108 seconds. If they start changing simultaneously at 8 a.m., after how much time will they change again simultaneously?

28. Three measuring rods are 45 cm, 50 cm and 75 cm in length. What is the least length (in metres) of a rope that can be measured by the full length of each of these three rods?

29. An electronic device makes a beep after every 15 minutes. Another device makes a beep after every 20 minutes. They beeped together at 6 a.m. At what time will they next beep together?

30. The circumferences of four wheels are 50 cm, 60 cm, 75 cm and 100 cm. They start moving simultaneously. What least distance should they cover so that each wheel makes a complete number of revolutions?

Note : 1)Do Ex 2E in maths copy
    2) No need to do Ex 2F

EXERCISE 2F X

OBJECTIVE QUESTIONS

Mark (✓) against the correct answer in each of the following:

1. Which of the following numbers is divisible by 3?
   (a) 24357806   (b) 35769812   (c) 83479560   (d) 3336433

2. Which of the following numbers is divisible by 9?
   (a) 8576901   (b) 96345210   (c) 67594310   (d) none of these

3. Which of the following numbers is divisible by 4?
   (a) 78653234   (b) 98765042   (c) 24689602   (d) 87941032

4. Which of the following numbers is divisible by 8?
   (a) 96354142   (b) 37450176   (c) 57064214   (d) none of these

5. Which of the following numbers is divisible by 6?
   (a) 8790432   (b) 98671402   (c) 85492014   (d) none of these

6. Which of the following numbers is divisible by 11?
   (a) 3333333   (b) 1111111   (c) 22222222   (d) none of these

7. Which of the following is a prime number?
   (a) 81   (b) 87   (c) 91   (d) 97

8. Which of the following is a prime number?
   (a) 117   (b) 171   (c) 179   (d) none of these

9. Which of the following is a prime number?
   (a) 323   (b) 361   (c) 263   (d) none of these

10. Which of the following are co-primes?
    (a) 8, 12   (b) 9, 10   (c) 6, 8   (d) 15, 18

11. Which of the following is a composite number?
    (a) 23   (b) 29   (c) 32   (d) none of these

12. The HCF of 144 and 198 is
    (a) 9   (b) 12   (c) 6   (d) 18

13. The HCF of 144, 180 and 192 is
    (a) 12   (b) 16   (c) 18   (d) 8

14. Which of the following are co-primes?
    (a) 39, 91   (b) 161, 192   (c) 385, 462   (d) none of these

    Hint. *HCF of co-primes is 1.*

15. $\dfrac{289}{391}$ when reduced to the lowest terms is
    (a) $\dfrac{11}{23}$ (b) $\dfrac{13}{31}$ (c) $\dfrac{17}{31}$ (d) $\dfrac{17}{23}$

16. The greatest number which divides 134 and 167 leaving 2 as remainder in each case is
    (a) 14   (b) 17   (c) 19   (d) 33

17. The LCM of 24, 36, 40 is
    (a) 4   (b) 90   (c) 360   (d) 720

TEST PAPER-2

A. 1. Test the divisibility of 5869473 by 11.

2. Test the divisibility of 67529124 by 8.

3. On dividing 5035 by 31, the remainder is 13. Find the quotient.

4. The HCF of two number is 15 and their product is 1650. Find their LCM.

5. Find the least 5-digit number which is exactly divisible by 20, 25, 30.

6. Find the largest number which divides 630 and 940 leaving remainders 6 and 4 respectively.

7. Find the least number which when divided by 16, 36 and 40 leaves 5 as remainder in each case.

8. Write all prime numbers between 50 and 100.

9. Write seven consecutive composite numbers less than 100 having no prime number between them.

10. Can two numbers have 12 as their HCF and 512 as their LCM? Justify your answer.

B. *Mark (✓) against the correct answer in each of the following:*

11. Which of the following are co-primes?

    (a) 91 and 72   (b) 34 and 51   (c) 21 and 36   (d) 15 and 20

12. The LCM of two co-prime numbers is their

    (a) sum   (b) difference   (c) product   (d) quotient

13. The number which is neither prime nor composite is

    (a) 0   (b) 1   (c) 2   (d) 3

14. What least number should be replaced for * so that the number 67301*2 is exactly divisible by 9?

    (a) 5   (b) 6   (c) 7   (d) 8

15. Which of the following numbers is divisible by 6?

    (a) 67821   (b) 78134   (c) 87432   (d) none of these

16. Which of the following is a prime number?

    (a) 143   (b) 131   (c) 147   (d) 161

17. $\dfrac{289}{391}$ when reduced to lowest term is

    (a) $\dfrac{13}{17}$ (b) $\dfrac{17}{19}$ (c) $\dfrac{17}{23}$ (d) $\dfrac{17}{21}$

18. Every counting number has an infinite number of

    (a) factors   (b) multiples   (c) prime factors   (d) none of these

C. 19. *Fill in the blanks.*

    (i) 1 is neither ...... nor ....

    (ii) The smallest prime number is ....

    (iii) The smallest composite number is ....

    (iv) The HCF of two consecutive odd numbers is ....

    (v) Two perfect numbers are ...... and ....