



IITJEE Foundation Practice paper

## PLAYING WITH NUMBERS

class-6-Mathematics Number of Questions: 73

For Answers and Solutions, Go to [www.micromerits.com](http://www.micromerits.com)

**1**

Write all the factors of the following number:

48

- 1, 2, 3, 4, 6, 8, 12, 24    1, 2, 3, 4, 8, 12, 24 and 48    1, 2, 3, 4, 6, 8, 12, 24 and 48  
 1, 2, 3, 4, 6, 8, 24 and 48

**2**

Write all the factors of the following number:

25

- 1, 5, 3 and 25    1, 5 and 25    1 and 25    1 and 5

**3**

Write all the factors of the following number:

51

- 1, 3, 17 and 51    1, 3, 17    1, 17 and 51    3, 17 and 51

**4**

Write all the factors of the following number:

72

- 1, 2, 3, 4, 6, 8, 9, 12 and 72    1, 2, 3, 4, 6, 8, 9, 12, 18, 24, 36 and 72  
 1, 2, 3, 4, 6, 7, 9, 12, 18, 24 and 72    1, 2, 4, 6, 8, 12, 18, 24, 36 and 72

**5**

Write the first five multiples of '7' :

- 7, 14, 21, 28 and 42    7, 12, 21, 28 and 35    7, 14, 21, 27 and 35  
 7, 14, 21, 28 and 35

**6**

Will the sum of any two odd numbers be 'Odd' or 'Even'?

- Odd    Even    Varies, depending upon the numbers.

**7**

State whether the following statement is true or false:

If an even number is divided by 2, the quotient is always odd.

- True    False

**8**

State whether the following statement is true or false:

All prime numbers are odd.

- True    False

**9**

State whether the following statement is true or false:

Prime numbers do not have any factors.

- True    False    May vary at different times

**10**

State whether the following statement is true or false:

Sum of two prime numbers is always even.

- True    False    May vary at different times

**11**

State whether the following statement is true or false:  
2 is the only even prime number.

- True  False  May vary at different times

**12**

State whether the following statement is true or false:  
All even numbers are composite numbers.

- True  False  May vary at different times

**13**

State whether the following statement is true or false:  
The product of two even numbers is always even.

- True  False  May vary at different times

**14**

The numbers 13 and 31 are prime numbers. Both these numbers have same digits 1 and 3. Find such pairs of prime numbers up to 100.

- 57 and 75; 37 and 73; 79 and 97  27 and 72; 37 and 73; 79 and 97  
 17 and 71; 37 and 73; 79 and 97  12 and 21; 19 and 91 ; 79 and 97

**15**

Write down the prime numbers less than 20.

- 2, 3, 5, 7, 11, 13, 17, 19  1, 3, 5, 7, 11, 13, 17, 19  2, 4, 5, 7, 11, 13, 17, 19  
 2, 3, 5, 9, 11, 13, 17, 19

**16**

List out all the composite numbers that come within 20.

- 2, 4, 6, 8, 9, 10, 12, 14, 15, 16, 18  4, 6, 8, 9, 10, 12, 14, 15, 16  
 2, 6, 7, 8, 9, 10, 12, 14, 15, 16, 18  4, 6, 8, 9, 10, 12, 14, 15, 16, 18

**17**

What is the greatest prime number between 1 and 10 ?

- 2    9    5    7

**18**

Express 44 as the sum of two odd primes

- 3 + 41    5 + 39    6 + 38    11 + 33

**19**

Express 24 as the sum of two odd primes

- 3 + 21    10 + 14    5 + 19    9 + 15

**20**

Which of the following expressions has the sum of composite numbers been used to express the number 16 ?

- 11 + 5    13 + 3    12 + 4    7 + 9

**21**

Which of these options have pairs of prime numbers (within the number 20) whose difference is 2?

- (3, 5) ; (5, 11) ; (13, 15)    (3, 5) ; (5, 7) ; (11, 13)    (3, 5) ; (7, 9) ; (11, 13)  
 (2, 4) ; (5, 7) ; (11, 13)

**22**

Which of the following numbers are prime ?  
(a) 23 (b) 51 (c) 37 (d) 26

- a and c    a and b    b and c    c and d

**23**

List out seven consecutive composite numbers less than 100, such that there is no prime number between them.

- 90, 91, 92, 93, 95, 96, 97    89, 90, 91, 92, 93, 94, 95    89, 90, 91, 92, 93, 94, 95  
 90, 91, 92, 93, 94, 95, 96

**24**

Express 21 as the sum of three odd primes:

- $3 + 4 + 14$      $5 + 9 + 7$      $3 + 5 + 13$      $3 + 10 + 8$

**25**

Express 61 as the sum of three odd primes:

- $61 = 7 + 13 + 41$      $61 = 7 + 12 + 42$      $61 = 8 + 12 + 41$

**26**

Write five pairs of prime numbers less than 20 whose sum is divisible by 5. (Hint:  $3 + 7 = 10$ )

- (2, 3); (2, 13); (3, 17); (12, 3); (11, 19)    (2, 3); (2, 14); (3, 17); (7, 13); (11, 19)  
 (2, 3); (2, 13); (3, 16); (7, 13); (11, 19)    (2, 3); (2, 13); (3, 17); (7, 13); (11, 19)

**27**

A number which has only two factors is called

- A prime number    A composite number    An odd number

**28**

A number which has more than two factors is called

- A prime number    A composite number    An even number

**29**

1 is neither \_\_\_\_\_ nor \_\_\_\_\_

- Negative number, positive number    Prime number, composite number  
 Whole number, natural number

**30**

The smallest prime number is

- 0    3    1    2

**31**

The smallest composite number is

- 
- 1    2    4    6

**32**

Which one of the following is the smallest even number ?

- 
- 2    1    3    4

**33**

Using divisibility tests, determine whether 409572 is divisible by 4 and 8:

- 
- Divisible by both 4 and 8    Divisible by 4 only    Divisible by 8 only  
 Not divisible by 4 or 8

**34**

Using divisibility tests, determine whether 726352 is divisible by 4 and 8:

- 
- Divisible by only 8    Divisible by both 4 and 8    Divisible by only 4  
 Not divisible by 4 or 8

**35**

Using divisibility tests, determine whether 1258 is divisible by 6:

- 
- Divisible by 6    Not divisible by 6

**36**

Using divisibility tests, determine whether 10814 is divisible by 11

- 
- Divisible by 11    Not divisible by 11

**37**

Using divisibility tests, determine whether 6061 is divisible by 11

- Divisible by 11    Not divisible by 11

**38**

Write a digit in the blank space of the following number so that the number is divisible by 11:

8 \_ 9484

- 8    7    6    3

**39**

Is the following statement true?  
A number is divisible by 18, if it is divisible by both 3 and 6

- True    False

**40**

Is the following statement true?  
If a number is divisible by 9 and 10 both, then it must be divisible by 90

- True    False

**41**

Is the following statement true?  
If two numbers are co-primes, at least one of them must be prime.

- True    False

**42**

Is the following statement true?  
All numbers which are divisible by 4 must also be divisible by 8

- True    False

43

Is the following statement true?  
All numbers which are divisible by 8 must also be divisible by 4.

True  False

44

Is the following statement true?  
If a number exactly divides two numbers separately, it must also exactly divide their sum.

False  True

45

Is the following statement true?  
If a number exactly divides the sum of two numbers, it must exactly divide the two numbers separately.

True  False

46

Express the greatest 4-digit number in terms of its prime factors.

$3 \times 3 \times 7 \times 101$    $3 \times 3 \times 11 \times 101$    $3 \times 9 \times 11 \times 101$   
  $3 \times 11 \times 11 \times 101$

47

Express the smallest 5-digit number in terms of its prime factors.

$2 \times 2 \times 2 \times 2 \times 5 \times 5 \times 5 \times 5$    $2 \times 2 \times 2 \times 5 \times 5 \times 5 \times 5 \times 5$   
  $2 \times 2 \times 2 \times 5 \times 5 \times 5 \times 5 \times 5$

48

Find the H.C.F of 24 and 36

12  10  8  14



**49**

Find the H.C.F of 15, 25 and 30

- 15    5    3    10

**50**

Find the H.C.F of 18 and 48

- 6    8    3    2

**51**

Find the H.C.F of 36, 84

- 6    12    4    3

**52**

Find the H.C.F of 34, 102

- 17    51    6    34

**53**

Find the H.C.F of 91, 112, 49

- 1    2    7    3

**54**

What is the H.C.F of two consecutive numbers ?

- 1    2    0    The average of the two numbers.

**55**

What is the H.C.F of two consecutive odd numbers ?

- 0    2    1    Not definite

**56**

Renu purchases two bags of fertilizer of weights 75 kg and 69 kg respectively.

Find the maximum value of weight unit which can measure the weight of the fertilizer exact number of times.

- 3 kg    2 kg    4 kg    5 kg

**57**

Three boys step off together from the same spot. Their steps measure 63 cm, 70 cm and 77 cm respectively. What is the minimum distance each should cover so that all can cover the distance in complete steps?

- 6935 cm    6930 cm    6940 cm    6945 cm

**58**

The length, breadth and height of a room are 825 cm, 675 cm and 450 cm respectively. Find the length of the longest tape which can measure the three dimensions of the room exactly.

- 75 cm    70 cm    80 cm    65 cm

**59**

Determine the smallest 3-digit number which is exactly divisible by 6, 8 and 12

- 120    125    130    140

**60**

Determine the greatest 3-digit number exactly divisible by 8, 10 and 12

- 720    840    960    600

**61**

The traffic lights at three different road crossings change after every 48 seconds, 72 seconds and 108 seconds respectively. If they change simultaneously at 7 a.m, after how many seconds will they change simultaneously again?

- 432 seconds    430 seconds    425 seconds    415 seconds

**62**

Three tankers contain 403 litres, 434 litres and 465 litres of diesel respectively. Find the maximum capacity of a container that can measure the diesel quantity of the three containers exact number of times.

- 21    31    40    41

**63**

Find the least number which when divided by 6, 15 and 18 leave remainder 5 in each case

- 95    90    85    80

**64**

Find the smallest 4-digit number which is divisible by 18, 24 and 32

- 1152    1150    1050    1050

**65**

Find the L.C.M of 6 and 5.  
And observe a common property in the obtained L.C.M. Is it the product of two numbers in this case ?

- 15, we observe that the L.C.M is an odd number  
 12, we observe that the L.C.M of two prime numbers is always even  
 30, we observe that the product of the two numbers is their L.C.M  
 6, we observe that the greater number of the 2 numbers is the L.C.M

**66**

Find the L.C.M of the following numbers in which one number is the factor of the other.

5, 20

What do you observe in the results obtained?

- 20, we observe that the greater number is the L.C.M of the 2 numbers
- 100, we observe that the product of the 2 numbers is the L.C.M
- 5, we observe that the smaller number is the L.C.M of the 2 numbers
- 13, we observe that the L.C.M is the approximated average of the 2 numbers

**67**

Find the L.C.M of the following numbers in which one number is the factor of the other.

6, 18

What do you observe in the results obtained?

- 12, we observe that the L.C.M of these 2 numbers is their average
- 24, we observe that the L.C.M is the sum of the 2 numbers
- 6, we observe that the L.C.M of two numbers the smaller number
- 18, we observe that the greater number of the 2 numbers is the L.C.M

**68**

Find the L.C.M of the following numbers in which one number is the factor of the other.

12, 48

What do you observe in the results obtained?

- 12, we observe that the L.C.M of two numbers is the smaller number.
- 48, we observe that the greater number of the two numbers is the L.C.M
- 30, we observe that the average of the two numbers is their L.C.M
- 60, we observe that the sum of the two numbers is their L.C.M

**69**

Find the L.C.M of the following numbers in which one number is the factor of the other.

9, 45

What do you observe in the results obtained?

- 45, we observe that the greater number is the L.C.M of the 2 numbers
- 9, we observe that the smaller number is the L.C.M of the 2 numbers

- 54 , we observe that the L.C.M is the sum of the two numbers
- 405, we observe that the product of the two numbers is their L.C.M

**70**

The HCF of two numbers is 19 and their LCM is 228. If one of the number is 57, find the other.

- 36
- 66
- 76
- 46

**71**

The product of two numbers is 1734 and their LCM is 102. What is their HCF ?

- 17
- 27
- 37
- 47

**72**

The HCF of two numbers is 23 and their LCM is 276. If one of the number is 92, find the other.

- 49
- 69
- 79
- 89

**73**

How many number prime numbers are there between 1 and 100 ?

- 35
- 15
- 25
- 21

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