Exercise 2A

Q8

Answer :

(i) 87
The divisors of 87 are 1, 3, 29 and 87 i.e. 87 has more than 2 factors. Therefore 87 is not a prime number.

(ii) 89
The divisors of 89 are 1 and 89. Therefore 89 is a prime number.

(iii) 63
The divisors of 63 are 1, 3, 7, 9, 21 and 63 i.e. 63 has more than 2 factors. Therefore 63 is not a prime number.

(iv) 91
The divisors of 91 are 1, 7, 13 and 91 i.e. 91 has more than 2 factors. Therefore 91 is not a prime number.

Q9

Answer :

90, 91, 92, 93, 94, 95 and 96 are seven consecutive numbers and none of them is a prime.

Q10

Answer :

(i) No, there are no counting numbers with no factors at all because every number has at least two factors, i.e., 1 and itself.
(ii) There is only one number that has exactly one factor, i.e, 1.
(iii) The numbers between 1 and 100 that have exactly three factors are 4, 9, 25 and 49.

Q12

Answer :

Two consecutive odd prime numbers are called twin primes.
The pairs of twin primes between 50 to 100 are (59, 61) and (71, 73).

Q13

Answer :

If two numbers do not have a common factor other than 1, they are said to be co-primes.

Five pairs of co primes: (i) 2 and 3 (ii) 3 and 4 (iii) 4 and 5 (iv) 4 and 9 (v) 8 and 15

No, co–primes are not always primes.

For example, 3 and 4 are co-prime numbers, where 3 is a prime number and 4 is not a prime number.

Q14

Answer :

(i) 36

36 as the sum of two odd prime numbers is (36 = 31 + 5).

(ii) 42

42 as the sum of two odd prime numbers is (42 = 31 + 11).

(iii) 84

84 as the sum of two odd prime numbers is (84 = 41 + 43).

(iv) 98

98 as the sum of two odd prime numbers is (98 = 31 + 67).

Q15

Answer :

(i) 31

31 can be expressed as the sum of three odd prime numbers as (31 = 5 + 7 + 19).

(ii)) 35

35 can be expressed as the sum of three odd prime numbers as (35 = 17 + 13 + 5).

(iii) 49

49 can be expressed as the sum of three odd prime numbers as (49 = 13 + 17 + 19).

(iv) 63

63 can be expressed as the sum of three odd prime numbers as (63 = 29 + 31 + 3).

Q16

Answer :

(i) 36

36 can be expressed as the sum of twin primes as (36 = 17 + 19).

(ii) 84

84 can be expressed as the sum of twin primes as (84 = 41 + 43).

(iii) 120

120 can be expressed as the sum of twin primes as (120 = 59 + 61).

(iv) 144

144 can be expressed as the sum of twin primes as (144 = 71 + 73).

Q17

Answer :

(i) False. 2 is the smallest prime number.

(ii) False. 2 is an even prime number.

(iii) False. 3 and 7 are two prime numbers and their sum is 10, which is even.

(iv) False. 4 and 9 are co-primes but neither of them is a prime number.

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