CLASS NOTES-ANSWERS

EXERCISE 3.2

1. What is the sum of any two

(a) Odd numbers? (b) Even numbers?

Answer:

(a) The sum of any two odd numbers is an even number.

Example: 3 + 5 = 8, 11 + 23 = 34

(b) The sum of any two even numbers is an even number only.

Example: 2 + 4 = 6, 16 + 18 = 34

2. State whether the following statements are True or False:

(a) The sum of three odd numbers is even.

(b) The sum of two odd numbers and one even number is even.

(c) The product of three odd numbers is odd.

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

(e) All prime numbers are odd.

(f) Prime numbers do not have any factors.

(g) Sum of two prime numbers is always even.

(h) 2 is the only even prime number.

(i) All even numbers are composite numbers.

(j) The product of two even numbers is always even.

Answer:

(a) False [For example, 3 + 5 + 7 = 15, which is an odd number]

(b) True [For example, 3 + 5 + 6 = 14, which is an even number]

(c) True [For example, 5 × 7 × 9 = 315, which is an odd number]

(d) False [For example, 36 ÷ 2 = 18, which is an even number]

(e) False [2 is a prime number, but it is even]

(f) False [For example, 3 is a prime number having 1 and 3 as its factors]

(g) False [For example, 7 + 2 = 9, which is an odd number]

(h) True [2 is even and the lowest prime number]

(i) False [2 is even but not composite number]

(j) True [For example, 4 × 6 = 24, which is an even number]

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

Answer:

The prime numbers between 1 to 100 are: 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97. The required pairs of prime numbers (up to 100) having the same digits as13 and 31 are:

a) 17 and 71

b) 37 and 73

c) 79 and 97

4. Write down separately the prime and composite numbers less than 20.

Answer:

The prime numbers less than 20 are as follows: 2, 3, 5,7, 11, 13, 17 and 19.

The composite numbers less than 20 are as follows:4, 6, 8, 9, 10, 12, 14, 15, 16 and 18.

5. What is the greatest prime number between 1 and 10?

Answer: There are four prime numbers between 1 and 10: 2, 3, 5, and 7 and the greatest one is 7.

6. Express the following as the sum of two odd primes.

(a) 44 (b) 36 (c) 24 (d) 18

Answer:

(a) 44 = 13 + 31 (13 and 31 are odd prime numbers)

(b) 36 = 17 + 19 (17 and 19 are odd prime numbers)

(c) 24 = 7 + 17 (7 and 17 are odd prime numbers)

(d) 18 = 7 + 11 (7 and 11 are odd prime numbers)

7. Give three pairs of prime numbers whose difference is 2.

[Remark: Two prime numbers whose difference is 2 are called twin primes].

Answer:

(a) 3 and 5 (b) 5 and 7 (c)11 and 13

8. Which of the following numbers are prime?

(a) 23 (b) 51 (c) 37 (d) 26

Answer:

(a) 23 is a prime number [23 can be expressed as 23 = 1 x 23]

(b) 51 is not a prime number [51 can be expressed as 51 = 1 x 3 x 17]

(c) 37 is a prime number [37 can be expressed as 37 = 1 x 37]

(d) 26 is not a prime number [26 can be expressed as 26 = 1 x 2 x 13]

9. Write seven consecutive composite numbers less than 100 so that there is no prime number between them.

Answer: 90, 91, 92, 93, 94, 95 and 96

10. Express each of the following numbers as the sum of three odd primes:

(a) 21 (b) 31 (c) 53 (d) 61

Answer:

(a) 21 can be expressed as 3 + 5 + 13 (3, 5 and 13 are odd primes)

(b) 31 can be expressed as 5 + 7 + 19 (5, 7 and 1 are odd primes)

(c) 53 can be expressed as 13 + 17 + 23 (13, 17 and 23 are odd primes)

(d) 61 can be expressed as 11 + 13 + 37 (11, 13 and 37 are odd primes)

11. Write five pairs of prime numbers less than 20 whose sum is divisible by 5.

(Hint: 3+7 = 10)

Answer:

(i) 2 + 3 = 5 (5/5 = 1. Thus, it is divisible by 5)

(ii) 2 + 13 = 15 (15/5 = 3. Thus, it is divisible by 5)

(iii) 11 + 9 = 20 (20/5 = 4. Thus, it is divisible by 5)

(iv) 17 + 3 = 20 (20/5 = 4. Thus, it is divisible by 5)

(v) 7 + 13 = 20 (20/5 = 4. Thus, it is divisible by 5)

12. Fill in the blanks:

(a) A number which has only two factors is called a _____.

(b) A number which has more than two factors is called a _____.

(c) 1 is neither _____nor ____.

(d) The smallest prime number is _____.

(e) The smallest composite number is _____.

(f) The smallest even number is _____.

Answer:

(a) prime number

(b) composite number

(c) prime, composite

(d) 2

(e) 4

(f) 2