CLASS NOTES-ANSWERS

EXERCISE 3.4

1. Find the common factors of:

    (a) 20 and 28   (b) 15 and 25

    (c) 35 and 50   (d) 56 and 120

Answer:

(a) 20 and 28

    Factors of 20 are 1, 2, 4, 5, 10, 20

    Factors of 28 are 1, 2, 4, 7, 28

    Therefore, the common factors of 20, and 28 are 1, 2, and 4.

(b) 15 and 25

    Factors of 15 are 1, 3, 5, 15

    Factors of 25 are 1, 5, 25

    Therefore, the common factors of 15 and 25 are 1 and 5.

(c) 35 and 50

    Factors of 35 are: 1, 5, 7, 35

    Factors of 50 are: 1, 2, 5, 10, 50

    Therefore, the common factors of 35 and 50 are 1 and 5.

(d) 56 and 120

Factors of 56 are 1, 2, 4, 7, 8, 14, 28, 56

Factors of 120 are 1, 2, 3, 4, 5, 6, 8, 10, 12, 15, 20, 30, 40, 60, 120

Therefore, the common factors of 56 and 120 are 1, 2, 4, and 8

2. Find the common factors of:

(a) 4, 8 and 12   (b) 5, 15 and 25

Answer:

(a) 4, 8 and 12 Factors of 4 are 1, 2, 4

Factors of 8 are 1, 2, 4, 8

Factors of 12 are 1, 2, 3, 4, 6, 12

Therefore, the common factors of 4, 8, and 12 are 1, 2, and 4.

(b) 5, 15 and 25 Factors of 5 are 1, 5

Factors of 15 are 1, 3, 5, 15

Factors of 25 are 1, 5, 25

Therefore, the common factors of 5, 15, and 25 are 1 and 5.

3. Find first three common multiples of:

(a) 6 and 8   (b) 12 and 18

Answer:

(a) 6 and 8.

The first few multiples of 6 are: 6, 12 ,18, 24, 30, 36, 42, 48, 54, 60, 66, 72, 78….

Similarly, the multiples of 8 are: 8, 16, 24, 32, 40, 48, 56, 64, 72, 80…..

Hence, the first three common multiples of 6 and 8 are 24, 48 and 72.

(b) 12 and 18.

The first few multiples of 12 are: 12, 24, 36, 48, 60, 72, 84, 96, 108, 120.....

Similarly, the multiples of 18 are: 18, 36, 54, 72, 90, 108, 126.....

Hence, the first three common multiples of 12 and 18 are 36, 72 and 108.

4. Write all the numbers less than 100 which are common multiples of 3 and 4.

Answer:

The common multiples of 3 and 4 less than 100 are 12, 24, 36, 48, 60, 72, 84, and 96

5. Which of the following numbers are co-prime?

 (a) 18 and 35   (b) 15 and 37   (c) 30 and 415

 (d) 17 and 68   (e) 216 and 215   (f) 81 and 16

Answer:

(a) 18 and 35

Factors of 18 are 1, 2, 3, 6, 9, 18

Factors of 35 are 1, 5, 7, 35

The common factor of 18 and 35 is only 1.

Therefore, 18 and 35 are co-prime.

(b) 15 and 37

Factors of 15 are 1, 3, 5, 15

Factors of 37 are 1, 37

The common factor of 15 and 37 is only 1.

Therefore, 15 and 37 are co-prime.

(c) 30 and 415

Factors of 30 are 1, 2, 3, 5, 6, 15, 30

Factors of 415 are 1, 5, 83, 415

The common factors of 30 and 415 are 1 and 5.

Therefore, 30 and 415 are not co-prime.

(d) 17 and 68Factors of 17 are 1, 17

Factors of 68 are 1, 2, 4, 17, 34, 68

The common factors of 17 and 68 are 1 and 17.

Therefore, 17 and 68 are not co-prime.

(e) Given numbers are 216 and 215

Factors of 216 are 1, 2, 3, 4, 6, 8, 9, 12, 18, 24, 27, 36, 54, 72, 108, 216

Factors of 215 are 1, 5, 43, 215

The common factor of 216 and 215 is only 1.

Therefore, 216 and 215 are co-prime.

(f) 81 and 16

Factors of 81 are 1, 3, 9, 27, 81

Factors of 16 are 1, 2, 4, 8, 16

The common factor of 81 and 16 is only 1.

Therefore, they are co-prime.

6. A number is divisible by both 5 and 12. By which other number will that number be always divisible?

Answer:

Factors of 5 are 1 and 5

Factors of 12 are 1, 2, 3, 4, 6 and 12.

Since the common factor of these numbers is 1, the given two numbers are co-prime.

Therefore, the number will also be divisible by their product which is

5 × 12 = 60 since if we divide 60 by 5 we get 12 and if we divide 60 by 12, we get 5.

Therefore, the required number is 60.

The number will also be divisible by all the factors of 60. The factors of 60 are 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30 and 60.

Therefore, the number will also be divisible by 1, 2, 3, 4, 6, 10, 15, 20, 30 and 60.

7. A number is divisible by 12. By what other numbers will that number be divisible?

Answer:

Factors of 12 are 1, 2, 3, 4, 6 and 12.

The number will also be divisible by all the factors of 12 since it is divisibleby 12.

Therefore, the number will also be divisible by 1, 2, 3, 4 and 6.