

NUMBER SYSTEM – A

1. $4\sqrt{6} + 7\sqrt{6}$ is equal to:

- a) $10\sqrt{6}$ b) $11\sqrt{6}$ c) $4\sqrt{12}$ d) $8\sqrt{12}$

2. Can we write 0 in the form of p/q ?

- a) Yes b) No c. Cannot be explained d. None of the above

3. The three rational numbers between 3 and 4 are:

- a) $5/2, 6/2, 7/2$ b) $13/4, 14/4, 15/4$ c) $12/7, 13/7, 14/7$ d) $11/4, 12/4, 13/4$

4. In between any two numbers, there are:

- a) Only one rational number b) Two rational numbers
c) Infinite rational numbers d) No rational number

5. Every rational number is:

- a) Whole number b) Natural number c) Integer d) Real number

6. $\sqrt{9}$ is _____ number.

- a) A rational b) An irrational
c) Neither rational nor irrational d) None of the above

7. Which of the following is an irrational number?

- a) $\sqrt{16}$ b) $\sqrt{12/3}$ c) $\sqrt{12}$ d) $\sqrt{100}$

8. The unit digit of a two digit number is 3 more than the tens digit. If the number is subtracted from the sum of the squares of its digits the result is $8/9$ of the product of the digits. What is the number?

- a) 36 b) 46 c) 69 d) 79

9. Find which of the following are twin Primes.

- a) (37, 41) b) (3, 7) c) (43, 47) d) (71, 73)

10. If a number is in the form of $810 \times 97 \times 78$, find the total number of prime factors of the given number.

- a) 52 b) 560 c) 3360 d) 25

ANSWER KEY

1. B

$$4\sqrt{6} + 7\sqrt{6} = (4 + 7)\sqrt{6} = 11\sqrt{6}.$$

2. A

0 is a rational number and hence it can be written in the form of p/q .

Example: $0/4 = 0$

3. B

There are many rational numbers between 3 and 4

To find 3 rational numbers, we need to multiply and divide both the numbers by $3+1 = 4$

Hence, $3 \times (4/4) = 12/4$ and $4 \times (4/4) = 16/4$

Thus, three rational numbers between $12/4$ and $16/4$ are $13/4$, $14/4$ and $15/4$.

4. C

Take the reference from question number 2 explained above.

5. D

Real number consist of all the rational and irrational numbers. A rational number is a number that is represented in the form of P/Q , where Q is not equal to zero and both P and Q are integers. For example, $\frac{1}{2}$ is a rational number, but not a whole number, a natural number or an integer.

6. A

$$\sqrt{9} = 3$$

Hence, $\sqrt{9}$ is a rational number.

7. C

$\sqrt{12}$ cannot be simplified to a rational number.

8. C

Difference between digit is 3 then two option is check

For option 1

According to question,

$$32 + 62 - 36 = 18 \times 8/9$$

9 is not equal 16

Then go for option 3

Now,

$$62 + 92 - 69 = 54 \times \frac{8}{9}$$

$$48 = 48$$

∴ The number is 69

9. D

Twin primes are pairs of successive primes that differ by two.

Options:

(37, 41) – Difference between them is 4.

(3, 7) – The difference between them is 4.

(43, 47) – Difference between them is 4.

(71, 73) – Difference between them is 2.

Here, in the given option (71 and 73) are prime numbers and their difference is '2'.

10. A

The number $810 \times 97 \times 78$ can be written as $(23)_{10} \times (32)_7 \times 78$

The number can be written as $230 \times 314 \times 78$

Total number of prime factors = $30 + 14 + 8$

∴ The total number of prime factors are 52