Assertion Reason Questions for Class 10 Maths Chapter 1 Real Numbers

Direction : In the following questions, a statement of Assertion (A) is followed by a statement of Reason (R). Mark the correct choice as :

(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

(b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A).

(c) Assertion (A) is true but Reason (R) is false.

(d) Assertion (A) is false but Reason (R) is true.

Q.1. Assertion : The H.C.F. of two numbers is 16 and their product is 3072. Then their L.C.M. = 162.

Reason : If a and b are two positive integers, then H.C.F. \times L.C.M. = a \times b.

Answer: (d) Assetion (A) is false but Reason (R) is true.

Explanation : Since HCF \times LCM = a \times b

 $\Rightarrow 3072 = 16 \times 162$

 $\Rightarrow 3072 \neq 2592$

Q.2. Assertion : Denominator of 34.12345. When expressed in the form p/q, $q \neq 0$, is of the form $2^m \times 5^n$, where m and n are non-negative integers.

Reason : 34.12345 is a terminating decimal fraction.

Answer: (a)

Explanation: Reason is clearly true. Here, $34.12345 = \frac{3412345}{100000} = \frac{682469}{20000} = \frac{682469}{2^5 \times 5^4}$ Its denominator is of the form $2^m \times 5^n$[Here m = 5 and n = 4 are non-negative integers.

Q.3. Assertion : 13/3125 is a terminating decimal fraction.

Reason : If $q = 2^{n}.5^{m}$ where n and m are non-negative integers, then p/q is a terminating decimal fraction.

Answer: (a)

Explanation: Since the factors of the denominator 3125

is of the form $2^0 \times 5^5$. $\frac{13}{3125}$ is a **terminating decimal fraction**.

Q.4. Assertion : When a positive integer a is divided by 3, the values of remainder can be 0, 1 or 2.

Reason : According to Euclid's Division Lemma a = bq + r, where $0 \le r < b$ and r is an integer.

Answer: (a)

Given positive integers A and B, there exists unique integers Q and R satisfying a = bq + r, where $0 \le r < b$. This is known as Euclid's Division Lemma.

Q.5. Assertion : A number N when divided by 15 gives the remainder 2. Then the remainder is same when N is divided by 5.

Reason : $\sqrt{3}$ is an irrational number.

Answer :

Explanation : Let we take three numbers which are divisible by 5 and 15 both, are 30, 45, 60. Now, we add the remainder 2, we get 32, 47, 62

Therefore, we can see that as one numbers are divisible by 5 & 15 but remainder is same as 2.

Q.6. Assertion : 2 is an example of a rational number.

Reason : The square roots of all positive integers are irrational numbers.

Answer: (c)

Explanation : Here, reason is false. As $\sqrt{16} = \pm 4$, which is not an irrational number.

Q.7. Assertion : For any two positive integers p and q, HCF (p, q) × LCM (p, q) = $p \times q$

Reason : If the HCF of two numbers is 5 and their product is 150, then their LCM is 40.

Answer : (c)

We have, LCM (p, q) × HCF (p, q) = p × q LCM × 5 = 150 LCM = 150 / 5 = $30 \neq 40$ Therefore, Reason is false.