

Chapter - 1

Real Number

(Assertion and Reasoning Questions)

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 (A) : $\frac{13}{3125}$ is a terminating decimal fraction.

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

Q.2. Assertion (A) : 34.12345 is a terminating decimal fraction.

Reason (R) : Denominator of 34.12345, when expressed in the form $\frac{p}{q}$, $q \neq 0$, is of the form $2^m \times 5^n$, where m and n are non-negative integers.

Q.3. Assertion (A) : The HCF of two numbers is 5 and their product is 150, then their LCM is 30

Reason (R) : For any two positive integers a and b, $\text{HCF}(a,b) \times \text{LCM}(a,b) = a \times b$.

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ANSWER KEY

Q.1 : (a)

We have $3125 = 5^5 = 5^5 \times 2^0$

Since the factors of the denominator 3125 is of the form $2^0 \times 5^5$, $\frac{13}{3125}$ is a terminating decimal

Q.2 : (a)

$$34.12345 = \frac{3412345}{100000} = \frac{682469}{20000} = \frac{682469}{2^5 \times 5^4}$$

Its denominator is of the form $2^m \times 5^n$, where $m = 5$ and $n = 4$ which are non-negative integers.

Q.3 : (c)

We have,

$$\text{LCM}(a, b) \times \text{HCF}(a, b) = a \times b$$

$$\text{LCM} \times 5 = 150$$

$$\text{LCM} = \frac{150}{5} = 30$$