

Mathematics

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(Chapter – 1) (Number Systems)(Exemplar Problems)

(Class – IX)

Exercise 1.2

Question 3:

State whether the following statements are true or false? Justify your answer.

- (i) $\frac{\sqrt{2}}{3}$ is a rational number.
- (ii) There are infinitely many integers between any two integers.
- (iii) Number of rational numbers between 15 and 18 is finite.
- (iv) There are numbers which cannot be written in the form $\frac{p}{q}$, $q \neq 0$, p, q both are integers.
- (v) The square of an irrational number is always rational.
- (vi) $\frac{\sqrt{12}}{\sqrt{3}}$ is not a rational number as $\sqrt{12}$ and $\sqrt{3}$ are not integers.
- (vii) $\frac{\sqrt{15}}{\sqrt{3}}$ is written in the form $\frac{p}{q}$, $q \neq 0$ and so it is a rational number.

Answer 3:

(i) False.

For a rational number $\frac{p}{q}$, $q \neq 0$ p and q should be integers but in $\frac{\sqrt{2}}{3}$, p ($\sqrt{2}$) is not an integer.

(ii) False.

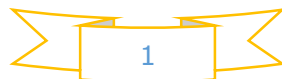
Because between 2 and 3, there is no integer.

(iii) False.

Because between any two rational numbers we can find infinitely many rational numbers.

(iv) True.

Because $\frac{\sqrt{5}}{\sqrt{3}}$ is in the form of $\frac{p}{q}$ but here p and q are not integers.



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(v) False.

Because $(\sqrt[5]{3})^2 = \sqrt[5]{9}$ is an irrational number.

(vi) False.

Because $\frac{\sqrt{12}}{\sqrt{3}} = \sqrt{4} = 2$, which is a rational number.

(vii) False.

Because $\frac{\sqrt{15}}{\sqrt{3}} = \sqrt{5} = \frac{\sqrt{5}}{1}$ is in the form of $\frac{p}{q}$ but p ($\sqrt{5}$) is not an integer.

