

Mathematics

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(Chapter – 1) (Real Numbers)(Exemplar Problems)
(Class – X)

Exercise 1.2

Question 10:

A rational number in its decimal expansion is 327.7081. What can you say about the prime factors of q , when this number is expressed in the form $\frac{p}{q}$? Give reasons.

Answer 10:

327.7081 is terminating decimal number. So, it represents a rational number and also its denominator must have the form $2^m \times 5^n$.

Thus,

$$327.7081 = \frac{3277081}{10000} = \frac{p}{q}$$

$$\begin{aligned}\therefore q &= 10^4 = 2 \times 2 \times 2 \times 2 \times 5 \times 5 \times 5 \times 5 \\ &= 2^4 \times 5^4 = (2 \times 5)^4\end{aligned}$$



Hence, the prime factorization of q contains only factors of 2 and 5.

