1.4 DECIMAL REPRESENTATIONS OF REAL NUMBERS

Ex.14 Without actually performing the long division, state whether $\dfrac{13}{3125}$ has terminating decimal expansion or not.

Sol. $\dfrac{13}{3125} = \dfrac{13}{2^0 \times 5^5}$

This, shows that the prime factorisation of the denominator is of the form $2^m \times 5^n$.

Hence, it has terminating decimal expansion.

Ex.15 What can you say about the prime factorisations of the denominators of the following rationals :

(i) 43.123456789 (ii) $43.\overline{123456789}$

Sol. (i) Since, 43.123456789 has terminating decimal, so prime factorisations of the denominator is of the form $2^m \times 5^n$, where m, n are non - negative integers.

(ii) Since, $43.\overline{123456789}$ has non-terminating repeating decimal expansion. So, its denominator has factors other than 2 or 5.