

Decimal Expression of Real Numbers: —

What is decimal expression?

e.g: ① $10/3$ — Rational number — fractional representation.

Dividing 10 by 3 — $3 \overline{) 10} \mid 3.33 \dots$

$$\begin{array}{r} 3 \\ \underline{10} \\ 10 \\ \underline{9} \\ 10 \\ \underline{9} \\ 10 \\ \underline{9} \\ 1 \end{array}$$

↳ Here figure 3 after decimal point is repeating / recurring
i.e. not terminating i.e. remainder will never be zero.

e.g. $\frac{10}{3} = 3.333 \dots = 3.\overline{3}$

e.g: ② $7/8 = 8 \overline{) 7} \mid 0.875$

$$\begin{array}{r} 8 \\ \underline{70} \\ 64 \\ \underline{60} \\ 40 \\ \underline{36} \\ 40 \\ \underline{40} \\ 0 \end{array}$$

↳ Non-repeating / Non-recurring
as remainder is zero.

* So a 'Rational Number' when expressed in 'decimal form' will be either 'Terminating — Non Recurring' or 'Non-Terminating & Recurring'.