

# Rational Numbers

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Every  $\mathbb{Q}$  has repeating decimal. for example;  $1 = 1.\overline{0}$  and  $\frac{1}{2} = 0.5\overline{0}$ . It doesn't even has to be 0.  $\frac{1}{3} = 0.\overline{3}$

*Proof.*

$$x = 3.\overline{15} \implies$$

$$100x = 315.\overline{15}$$

$$x = 3.\overline{15}$$

$$99x = 312$$

$$x = \frac{312}{99} = 3.\overline{15}$$

□