

$$\frac{1}{6} = \frac{10}{6} \cdot \frac{1}{10} = \left(1 + \frac{2}{3}\right) \cdot \frac{1}{10} =$$

$$= \frac{1}{10} + \frac{20}{3} \cdot \frac{1}{100} = \frac{1}{10} + \left(6 + \frac{2}{3}\right) \cdot \frac{1}{100} \dots$$

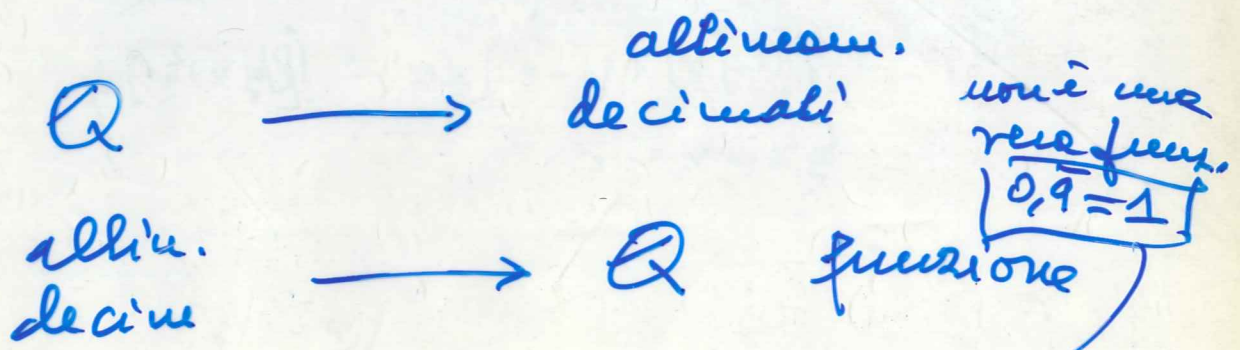
$$\begin{array}{r} 1 \\ 10 \\ 40 \\ 40 \\ 4 \dots \end{array} \left| \begin{array}{r} 6 \\ \hline 0,166 \end{array} \right.$$

$$\frac{1}{6} = 0,1\bar{6}$$

$$1 = \frac{1}{3} + \frac{2}{3} = 0,\bar{3} + 0,\bar{6} = 0,\bar{9} = 1$$

$$1,\bar{35} = 1 + 0,\bar{35} = 1 + \frac{35}{99} = \frac{99 + 35}{99}$$

$$\begin{aligned} 1,1\bar{35} &= 1,1 + 0,0\bar{35} = \frac{11}{10} + \frac{1}{10} (0,\bar{35}) = \\ &= \frac{11}{10} + \frac{1}{10} \cdot \frac{35}{99} = \\ &= \frac{11 \cdot 99 + 35}{990} \end{aligned}$$



lo diremo con questo tipo di identificazione

$$0, \overline{3} = \frac{3}{10} + \frac{3}{10^2} + \frac{3}{10^3} + \frac{3}{10^4} + \dots + \frac{3}{10^n} + \dots$$

nasconde un processo di limite

$\text{Seq. } \left\{ \begin{array}{l} \frac{3}{10} \\ \frac{3}{10} + \frac{3}{100} \\ \frac{3}{10} + \frac{3}{100} + \frac{3}{1000} \\ \dots \end{array} \right\} = \frac{1}{3} \text{ perché}$

$$\frac{3}{10} + \frac{3}{100} + \frac{3}{1000} = 3 \left(\frac{1}{10} + \frac{1}{10^2} + \frac{1}{10^3} \right) =$$

$$= \frac{3}{10} \cdot \left(1 + \frac{1}{10} + \frac{1}{10^2} \right) = \frac{3}{10} \cdot \frac{1^3 - \frac{1}{10^3}}{1 - \frac{1}{10}} =$$

$$= \frac{3}{10} \cdot \frac{1 - \frac{1}{10^3}}{\frac{9}{10}} = \frac{1 - \frac{1}{10^3}}{3}$$

$$(a^2 + ab + b^2)(a - b) = a^3 - a^2b + a^2b - ab^2 + ab^2 - b^3 = a^3 - b^3$$

$$a^2 + ab + b^2 = \frac{a^3 - b^3}{a - b}$$

$$\frac{3}{10} \left(1 + \frac{1}{10} + \frac{1}{10^2} + \frac{1}{10^3} \right) = \frac{3}{10} \cdot \frac{1 - \frac{1}{10^4}}{1 - \frac{1}{10}} = \frac{3}{10} \cdot \frac{1 - \frac{1}{10^4}}{\frac{9}{10}}$$

In generale

$$\frac{3}{10} \cdot \left(1 + \frac{1}{10} + \dots + \frac{1}{10^n} \right) = \frac{3}{10} \cdot \frac{1 - \frac{1}{10^{n+1}}}{\frac{9}{10}}$$

Visto che se n diventa molto grande $1/10^{n+1}$ diventa molto piccolo, il sup di questa insieme di frazioni è $1/3$