

Additional Examples

①

(32) $0.\overline{7}$ Convert a fraction!

$0.777\dots$ Infinite
 $\downarrow \quad \downarrow \quad \downarrow$

$$.7 + .07 + .007$$

$$\frac{7}{10} + \frac{7}{100} + \frac{7}{1,000}$$

A Geo Series, $r = \frac{1}{10}$

$$S = \frac{a_1}{1-r}$$

$$S = \frac{\frac{7}{10}}{\left(\frac{10}{10}\right) - \frac{1}{10}} \rightarrow \frac{\frac{7}{10}}{\frac{9}{10}}$$

$$\frac{7}{10} * \frac{10}{9} = \boxed{\frac{7}{9}}$$

(2)

(34.) $\overline{.36}$ Convert to a fraction

$$\begin{array}{r} .3636 \\ \vee \quad \vee \end{array}$$

$$\frac{36}{100} + \frac{36}{10,000}$$

$$r = \frac{1}{100}$$

$$S = \frac{\frac{36}{100}}{\left(\frac{100}{100}\right) - \frac{1}{100}} = \frac{\frac{36}{100}}{\frac{99}{100}}$$

$$\frac{36}{100} * \frac{100}{99} = \frac{36}{99} \rightarrow \boxed{\frac{4}{11}}$$

(3)

(35)

$$\overline{.231} \rightarrow \begin{array}{r} .000231 \\ .231231 \\ \vee \quad \vee \end{array}$$

$$\frac{231}{1,000} + \frac{231}{1,000,000} ; r = \frac{1}{1,000}$$

$$S = \frac{\frac{231}{1000}}{\left(\frac{1000}{1000}\right) - \frac{1}{1000}}$$

$$S = \frac{\frac{231}{1000}}{\frac{999}{1000}}$$

$$\frac{231}{\cancel{1000}} * \frac{\cancel{1000}}{999} = \frac{231}{999} \rightarrow \boxed{\frac{77}{333}}$$