

RECURRING DECIMALS

$$\frac{5}{6}$$

$$6 \overline{) 0.833}$$

$$\frac{5}{6} = 0.8\dot{3}$$

(b) Express $\frac{5}{11}$ as a recurring decimal.

$$11 \overline{) 0.4545...} \quad \frac{5}{11} = 0.4\dot{5}$$

[11]

(b) Express $\frac{12}{99}$ as a recurring decimal.

[2]

$$99 \overline{) 0.1212...} \quad \frac{12}{99} = 0.1\dot{2}$$

Express the following as fractions (a) $0.\dot{4}$ (b) $0.5\dot{3}$
(c) $0.3\dot{2}4$

(a) let $x = 0.\dot{4}$

$$x = 0.4444... \quad \text{--- (1)}$$

$$\times 10 \quad 10x = 4.4444... \quad \text{--- (2)}$$

$$(2) - (1) \quad 9x = 4$$

$$x = \frac{4}{9}$$

(b) let $x = 0.5\dot{3}$

$$x = 0.535353... \quad \text{--- (1)}$$

~~$$\times 10 \quad 10x = 5.353535...$$~~

$$\times 100 \quad 100x = 53.535353... \quad \text{--- (2)}$$

$$(2) - (1) \quad 99x = 53$$

$$x = \frac{53}{99}$$

$$(C) \quad 0.\dot{3}\dot{2}\dot{4}$$

$$\text{let } x = 0.\dot{3}\dot{2}\dot{4}$$

$$x = 0.3242424\dots$$

$$\times 10 \quad 10x = 3.242424\dots \quad \text{--- (1)}$$

~~$$\times 100 \quad 100x = 32.424242\dots$$~~

$$\times 1000 \quad 1000x = 324.242424\dots \quad \text{--- (2)}$$

$$(2) - (1) \quad 990x = 321$$

$$x = \frac{321}{990}$$

(b) Express $0.\dot{4}7\dot{8}$ as a fraction.

$$\text{let } x = 0.4787878$$

$$\times 10 \quad 10x = 4.787878 \quad \text{--- (1)}$$

$$\times 1000 \quad 1000x = 478.787878 \quad \text{--- (2)}$$

$$\textcircled{2} - \textcircled{1} \quad 990x = 474$$

$$x = \frac{474}{990}$$

[2]

(b) Express $0.8\dot{2}3$ as a fraction.

$$\text{let } x = 0.8232323$$

$$\times 10 \quad 10x = 8.232323 \dots \quad \text{--- (1)}$$

$$\times 1000 \quad 1000x = 823.232323 \dots \quad \text{--- (2)}$$

$$\textcircled{2} - \textcircled{1} \quad 990x = 815$$

$$x = \frac{815}{990}$$

[2]

(b) Express $0.54\dot{1}$ as a fraction.

$$\text{let } x = 0.5414141 \dots$$

$$\times 10 \quad 10x = 5.414141 \dots \quad \text{--- (1)}$$

$$\times 1000 \quad 1000x = 541.414141 \dots \quad \text{--- (2)}$$

$$\textcircled{2} - \textcircled{1} \quad 990x = 536$$

$$x = \frac{536}{990}$$

[2]

(b) Express $0.24\dot{3}$ as a fraction.

$$\text{let } x = 0.2434343 \dots$$

$$\times 10 \quad 10x = 2.434343 \dots \quad \text{--- (1)}$$

$$\times 1000 \quad 1000x = 243.4343 \dots \quad \text{--- (2)}$$

$$\textcircled{2} - \textcircled{1} \quad 990x = 241$$

$$x = \frac{241}{990}$$

[2]

17. (a) Express $0.\overline{346}$ as a fraction.

[2]

$$x = 0.3464646\ldots$$

$$\times 10 \quad 10x = 3.464646\ldots \quad \text{--- (1)}$$

$$\times 1000 \quad 1000x = 346.464646\ldots \quad \text{--- (2)}$$

$$\textcircled{2} - \textcircled{1} \quad 990x = 343$$

$$x = \frac{343}{990}$$

(b) Express $0.\overline{652}$ as a fraction.

$$\text{let } x = 0.6525252\ldots$$

$$\times 10 \quad 10x = 6.525252\ldots \quad \text{--- (1)}$$

$$\times 1000 \quad 1000x = 652.525252\ldots \quad \text{--- (2)}$$

$$\textcircled{2} - \textcircled{1}$$

$$990x = 646$$

$$x = \frac{646}{990}$$

[2]