Grade IX
Mathematics – Chapter I

1. Find the decimal expansion of $\frac{10}{3}, \frac{7}{8},$ and $\frac{1}{7}$

3.333 ...	0.875	0142857...
3 | 10	8 | 7.0	10
9	64	7
10	60	30
9	56	28
10	40	20
9	40	14
10	00	60
9		56
1		40
		35
		50
		49
		1

$\frac{10}{3}$

Solution: (i) Qudient; 3.333...

(ii) Divisor: 3

(iii) Remainder = 1

2. Express 3.142678 as a rational number.
   Solution:3.142678=$\frac{3142678}{1000000}$
3. Show that 0.3333... =0.$\overline{3}$ (Read block at 3) can be expressed in the form of $\frac{p}{q}$.

   Where p and q are integers and q$\neq$ 0.
   Solution\; Since we donot know what 0.$\overline{3}$ is, let's ca;; it x and 80 x=0.3333...
   10x=3.333...
   3.3333... = 3+x [because x=0.3333...
   $\therefore 10 = 3 + x$
   $10x$ −x=3
   $9x = 3 \therefore x = \frac{3}{9} = \frac{1}{3}$=0.3333...=0.$\overline{3}$
4. Show that 1.272727...=1.27 can be expressed in the form of $\frac{p}{q}$ where p and q are integers and q$\neq$ 0.
   Solution: Let $x = 1.272727$ ...

Since two digits are respeating, multiply by 100

$100x = 127.2727 \ldots$

$100x = 126 + 1.272727$

$100x = 126 + x$

$100x - x = 126$

$99x$=126

$x = \frac{126}{99} = \frac{14}{11}$

$\therefore 1.\overline{27} = \frac{14}{11}$

5. Show that 0.2353535... =$0.2\overline{35}$ can be expressed in the form $\frac{p}{q}$ where p and q are integers and q$\neq$ 0.

   Solution: Let x=$0.2\overline{35}$. Here 2 doesnot repeat, the block 35 repeats. Since 2 digits are repeating we multiply x by 100

   $100x = 23.53535 \ldots$

   $100x = 23.3 + 0.23535 \ldots = 23.3 + x$

   $100x - x = 23.3$

   $99x = 23.3$

   $x = \frac{23.3}{99} = \frac{233}{990}$

Homework:

1. Write the decimal form of the following

   (i) $\frac{3}{13}$ (ii) $\frac{1}{11}$ (iii) $\frac{2}{11}$ (iv) $\frac{329}{400}$

2. Express the following in the form of $\frac{p}{q}, q \neq 0$

   (i) $0.\overline{6}$ (ii) $0.4\overline{7}$

3. Express 0.99999... in the form of $\frac{p}{q}$