NCERT solutions for class 9 Maths Number System Ex-1.3

Q1. Write the following in decimal form and say what kind of decimal expansion each has: $\sqrt{5}$

(i) $\frac{36}{100}$

(ii) $\frac{1}{11}$

(iii) $4\frac{1}{8}$

(iv) $\frac{3}{13}$

(v) $\frac{2}{11}$

(vi) $\frac{329}{400}$

Ans: (i) $\frac{36}{100}$

On dividing 36 by 100, we get

$$
\begin{array}{r}
0.36 \\
100\overline{)\,36} \\
-0 \\
\hline
360 \\
-300 \\
\hline
600 \\
-600 \\
\hline
0
\end{array}
$$

Therefore, we conclude that $\frac{36}{100} = 0.36$, which is a terminating decimal.

(ii) $\frac{1}{11}$

On dividing 1 by 11, we get

$$
\begin{array}{r}
0.0909\ldots. \\
11\overline{)\ 1\ } \\
-0 \\
\hline
10 \\
-0 \\
\hline
100 \\
-99 \\
\hline
10 \\
-0 \\
\hline
100 \\
-99 \\
\hline
1
\end{array}
$$

We can observe that while dividing 1 by 11, we got the remainder as 1, which will continue to be 1.

Therefore, we conclude that

$\frac{1}{11} = 0.0909\ldots.$ or $\frac{1}{11} = 0.\overline{09}$, which is a non-terminating decimal and recurring decimal.

(iii) $4\frac{1}{8} = \frac{33}{8}$

On dividing 33 by 8, we get

$$
\begin{array}{r}
4.125 \\
8\overline{)\,33} \\
-32 \\
\hline
10 \\
-8 \\
\hline
20 \\
-16 \\
\hline
40 \\
-40 \\
\hline
0 \\
\hline
\end{array}
$$

We can observe that while dividing 33 by 8, we got the remainder as 0.

Therefore, we conclude that $4\frac{1}{8} = \frac{33}{8} = 4.125$, which is a terminating decimal.

(iv) $\frac{3}{13}$

On dividing 3 by 13, we get

$$
\begin{array}{r}
0.230769\ldots. \\
13\overline{)\ 3} \\
\underline{-0} \\
30 \\
\underline{-26} \\
40 \\
\underline{-39} \\
10 \\
\underline{-0} \\
100 \\
\underline{-91} \\
90 \\
\underline{-78} \\
120 \\
\underline{-117} \\
3
\end{array}
$$

We can observe that while dividing 3 by 13 we got the remainder as 3, which will continue to be 3 after carrying out 6 continuous divisions.

Therefore, we conclude that

$\frac{3}{13} = 0.230769\ldots..$ or $\frac{3}{13} = 0.\overline{230769}$, which is a non-terminating decimal and recurring decimal.

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