

Rational and Irrational Number**Lecture sheet – 4****Solution****1. Determine the square root:****a) 0.36 b) 2.25 c) 0.0049 d) 641.1024 e) 0.000576 f) 144..841225****Solution:**

a)

$$\begin{array}{r|l} 6 & \overline{0.36} \text{ (0.6)} \\ & 36 \\ \hline & 0 \end{array}$$

∴ The required square root = $\sqrt{0.36} = 0.6$

Ans: 0.6.

b)

$$\begin{array}{r|l} 1 & \overline{2.25} \text{ (1.5)} \\ & 1 \\ \hline 25 & 1 \ 25 \\ & 1 \ 25 \\ \hline & 0 \end{array}$$

∴ The required square root = $\sqrt{2.25} = 1.5$

Ans: 1.5.

c)

$$\begin{array}{r|l}
 7 & 0.\overline{00} \overline{49} \text{ (} 0.07 \\
 & \underline{49} \\
 & 0
 \end{array}$$

∴ The required square root = $\sqrt{0.0049} = 0.07$

Ans: 0.07.

d)

$$\begin{array}{r|l}
 2 & 6 \overline{41} . \overline{10} \overline{24} \text{ (} 25.32 \\
 & \underline{4} \\
 45 & \underline{2 \ 41} \\
 & 225 \\
 503 & \underline{16 \ 10} \\
 & 15 \ 09 \\
 5062 & \underline{1 \ 01 \ 24} \\
 & 1 \ 01 \ 24 \\
 & \underline{\hspace{1.5cm}} \\
 & 0
 \end{array}$$

∴ The required square root = $\sqrt{641.1024} = 25.32$

Ans: 25.32.

e)

$$\begin{array}{r}
 2 \mid 0.\overline{00}\overline{05}\overline{76} \text{ (} 0.024 \\
 \underline{\quad\quad 4 \quad\quad} \\
 44 \quad \quad \quad 1\ 76 \\
 \quad \quad \quad \underline{\quad 1\ 76 \quad} \\
 \quad \quad \quad \quad \quad 0
 \end{array}$$

∴ The required square root = $\sqrt{0.000576} = 0.024$

Ans: 0.024.

f)

$$\begin{array}{r}
 1 \mid 1\overline{44}.\overline{84}\overline{12}\overline{25} \text{ (} 12.035 \\
 \underline{\quad 1 \quad} \\
 22 \quad \quad 44 \\
 \quad \quad \underline{\quad 44 \quad} \\
 240 \quad \quad 84 \\
 \quad \quad \quad 0 \\
 \quad \quad \underline{\quad \quad 0 \quad} \\
 2403 \quad \quad 84\ 12 \\
 \quad \quad \quad \underline{\quad 72\ 09 \quad} \\
 24065 \quad \quad 12\ 03\ 25 \\
 \quad \quad \quad \underline{\quad 12\ 03\ 25 \quad} \\
 \quad \quad \quad \quad \quad 0
 \end{array}$$

∴ The required square root = $\sqrt{144.841225} = 12.035$

Ans: 12.035.

2. Determine the square root upto two decimal places:

a) 7 b) 23.24 c) 0.036

Solution:

a)

$$\begin{array}{r} 2 \overline{) 7.00\ 00\ 00} \quad (2.645 \\ \underline{4} \\ 3\ 00 \\ \underline{2\ 76} \\ 524\ 00 \\ \underline{20\ 96} \\ 5285\ 00 \\ \underline{2\ 64\ 25} \\ 39\ 75 \end{array}$$

∴ The required square root = 2.65 (approx)

Ans: 2.65 (approx).

b)

$$\begin{array}{r}
 4 \quad | \quad \overline{23.24\ 00\ 00} \quad (\quad 4.8207 \\
 \quad \quad \quad 16 \\
 \hline
 88 \quad \quad 724 \\
 \quad \quad \quad 704 \\
 \hline
 962 \quad \quad 20\ 00 \\
 \quad \quad \quad 19\ 24 \\
 \hline
 9640 \quad \quad 76\ 00 \\
 \quad \quad \quad \quad 0 \\
 \hline
 96407 \quad \quad 76\ 00\ 00 \\
 \quad \quad \quad 67\ 48\ 49 \\
 \hline
 \quad \quad \quad 8\ 51\ 51
 \end{array}$$

∴ The required square root = 4.82 (approx)

Ans: 4.82 (approx).

