Squares and Square Roots
Exercise 3F

Q1

Answer :

Using long division method:

$$\begin{array}{r|l} & 1.3 \\ \hline 1 & \overline{1}\,\overline{69} \\ 1 & 1 \\ \hline 23 & 69 \\ 3 & 69 \\ \hline & 0 \end{array}$$

$\therefore \sqrt{1.69} = 1.3$

Q2

Answer :

Using long division method:

$$\begin{array}{r|l} & 5.8 \\ \hline 5 & \overline{33}.\overline{64} \\ 5 & 25 \\ \hline 108 & 864 \\ 8 & 864 \\ \hline & 0 \end{array}$$

$\therefore \sqrt{33.64} = 5.8$

Q3

Answer :

Using long division method:

$$\begin{array}{r|l} & 12.5 \\ \hline 1 & \overline{1}\ \overline{56.25} \\ 1 & 1 \\ \hline 22 & 56 \\ 2 & 44 \\ \hline 245 & 1225 \\ 5 & 1225 \\ \hline & 0 \end{array}$$

$\therefore \sqrt{156.25} = 12.5$

Q4

Answer :

Using long division method:

$$\begin{array}{r|l} & 8.7 \\ \hline 8 & \overline{75.69} \\ 8 & 64 \\ \hline 167 & 1169 \\ 7 & 1169 \\ \hline & 0 \end{array}$$

$\therefore \sqrt{75.69} = 8.7$

Q5

Answer :

Using long division method:

$$\begin{array}{r|l} & 3.14 \\ \hline 3 & \overline{9.85}\ \overline{96} \\ 3 & 9 \\ \hline 61 & 85 \\ 1 & 61 \\ \hline 624 & 2496 \\ 4 & 2496 \\ \hline & 0 \end{array}$$

$\therefore \sqrt{9.8596} = 3.14$

Q6

Answer :

Using long division method:

$$\begin{array}{r|l} & 3.17 \\ \hline 3 & \overline{10.04}\ \overline{89} \\ 3 & 9 \\ \hline 61 & 104 \\ 1 & 61 \\ \hline 627 & 4389 \\ 7 & 4389 \\ \hline & 0 \end{array}$$

$\therefore \sqrt{10.0489} = 3.17$

Q7

Answer :

Using long division method:

$$\begin{array}{r|l} & 1.04 \\ \hline 1 & \overline{1.08}\ \overline{16} \\ 1 & 1 \\ \hline 204 & 0816 \\ 4 & 0816 \\ \hline & 0 \end{array}$$

$\therefore \sqrt{1.0816} = 1.04$

Q8

Answer :

Using long division method:

$$\begin{array}{r|l} & 0.54 \\ \hline 5 & \overline{0.29}\ \overline{16} \\ 5 & 25 \\ \hline 104 & 416 \\ 4 & 416 \\ \hline & 0 \end{array}$$

$\therefore \sqrt{0.2916} = 0.54$

Q9

Answer :

Using long division method:

$$\begin{array}{r|l} & 1.732 \\ \hline 1 & \overline{3.00}\ \overline{00}\ \overline{00} \\ 1 & 1 \\ \hline 27 & 200 \\ 7 & 189 \\ \hline 343 & 1100 \\ 3 & 1029 \\ \hline 3462 & 7100 \\ 2 & 6924 \\ \hline & 176 \end{array}$$

$\sqrt{3} = 1.732$

$\Rightarrow \sqrt{3} = 1.73$ (correct up to two decimal places)

Q10

Answer :

Using long division method:

$$\begin{array}{r|l} & 1.673 \\ \hline 1 & \overline{2.80}\ \overline{00}\ \overline{00} \\ 1 & 1 \\ \hline 26 & 180 \\ 6 & 156 \\ \hline 327 & 2400 \\ 7 & 2289 \\ \hline 3343 & 11100 \\ 3 & 10029 \\ \hline & 1071 \end{array}$$

$\therefore \sqrt{2.8} = 1.673$

$\Rightarrow \sqrt{2.8} = 1.67$ (correct up to two decimal places)

Q11

Answer :

Using long division method:

$$\begin{array}{r|l} & 0.948 \\ \hline 9 & \overline{0}\ \overline{90}\ \overline{00}\ \overline{00}\ \overline{00} \\ 9 & 81 \\ \hline 184 & 900 \\ 4 & 736 \\ \hline 1888 & 16400 \\ 8 & 15104 \\ \hline & 1296 \end{array}$$

$\therefore \sqrt{0.9} = 0.948$

$\Rightarrow \sqrt{0.9} = 0.95$ (correct up to two decimal places)

Q12

Answer :

Area of the rectangle $= (13.6 \times 3.4) = 46.24$ sq m
Thus, area of the square is 46.24 sq m.

Length of each side of the square $= \sqrt{46.24}$ m

Using long division method:

$$
\begin{array}{r|l}
 & 6.8 \\
\hline
6 & \overline{46.}\overline{24} \\
\underline{6} & 36 \\
128 & 1024 \\
\underline{8} & 1024 \\
 & 0
\end{array}
$$

$\sqrt{46.24} = 6.8$

Thus, the length of a side of the square is 6.8 metres.