Exercise 3.9

Using square root table, find the square root of the following.

(i) 7 , from square root table $\sqrt{7} = 2.645$

(ii) $\sqrt{15} = 3.873$

(iii) $\sqrt{74} = 8.602$

(iv) $\sqrt{82} = 9.055$

(v) $\sqrt{198} = \sqrt{2 \times 9 \times 11} = 3\sqrt{22} = 3 \times 4.690$
$= 14.070$

(vi) $\sqrt{540} = \sqrt{3 \times 3 \times 3 \times 2 \times 2 \times 5} = 3 \times 2\sqrt{15}$
$= 6\sqrt{15}$
$= 6 \times 3.873 = 23.24$

(vii) $\sqrt{8700} = \sqrt{87} \times \sqrt{100}$
$= \sqrt{3 \times 29} \times 10 = 10 \times \sqrt{3} \times \sqrt{29}$
$= 10 \times 1.732 \times 5.385$
$= 93.27$

(viii) $\sqrt{3509} = \sqrt{121} \times \sqrt{29}$
$= 11 \times \sqrt{29} = 11 \times 5.385$
$= 59.235$

(IX) $\sqrt{6929} = \sqrt{13 \times 13 \times 41}$

$= 13\sqrt{41} = 13 \times 6.403$

$= 83.239$

(X) $\sqrt{25725} = \sqrt{3 \times 7 \times 5 \times 5 \times 7 \times 7}$

$= 5 \times 7\sqrt{21} = 35\sqrt{21}$

$= 35 \times 4.583 = 160.41$

(XI) $\sqrt{1312} = \sqrt{2 \times 2 \times 2 \times 2 \times 2 \times 41}$

$= 2 \times 2 \times \sqrt{82}$

$= 4\sqrt{82} = 4 \times 9.055$

$= 36.22$

(XII) $\sqrt{4192} = \sqrt{2 \times 2 \times 2 \times 2 \times 2 \times 131}$

$= 2 \times 2\sqrt{2 \times 131}$

$= 4\sqrt{262}$

$= 4 \times 12.32$

$= 4 \times 16.185$

$= 64.75$

(xiii) $\sqrt{4955} = \sqrt{5 \times 991}$

$= \sqrt{5} \times \sqrt{991}$ $\left\{ \because \sqrt{991} = 31.48 \right.$

$= 2.236 \times 31.48$

$= 70.39.$

(xiv) $\sqrt{\frac{99}{144}} = \frac{\sqrt{3 \times 3 \times 11}}{12} = \frac{3\sqrt{11}}{12} = \frac{3 \times 3.317}{12}$

$= 0.829$

(xv) $\sqrt{\frac{57}{169}} = \frac{\sqrt{57}}{13} = \frac{7.550}{13} = 0.0581$

(xvi) $\sqrt{\frac{101}{169}} = \frac{\sqrt{101}}{13} = \frac{10.049}{13} = 0.773$

(xvii) $\sqrt{13.21} = \sqrt{\frac{1321}{100}} = \frac{\sqrt{1321}}{10}$

$= \frac{36.34}{10} = 3.634$

	36.34
3	$\overline{13}\,\overline{21}.00$
+3	9
66	421
+6	396
723	2500
+3	2169
7264	33100
	29056

(xviii) $\sqrt{21.97}$

$= \sqrt{\frac{2197}{100}} = \frac{\sqrt{2197}}{10} = \frac{46.872}{10} = 4.6827$

(By long division $\sqrt{2197} = 46.872$)

(xix) $\sqrt{110} = \sqrt{5} \times \sqrt{22}$

$= 2.236 \times 4.690$

$= 10.488$

(xx) $\sqrt{1110} = \sqrt{2} \times \sqrt{5} \times \sqrt{3} \times \sqrt{37}$

or $\sqrt{37} \times \sqrt{30}$

$= 6.083 \times 5.477$

$= 33.317$

2	1110
5	555
3	111
37	37
	1

21. $\sqrt{11.11} = \sqrt{\frac{1111}{100}} = \frac{\sqrt{1111}}{10}$

$= \frac{33.33}{10}$

$= 3.333\ldots$

33.33

3	1111
+3	9
63	211
+3	189
663	2200
+3	1989
6663	21100
	19989

Q.22 The area of a square field is 325 m^2. Find the approximate length of one side of the field.

Solution: $(\text{side})^2 = 325$

$\Rightarrow \text{side} = \sqrt{325} = \sqrt{25} \times \sqrt{13}$

$= 5 \times \sqrt{13}$

$= 5 \times 3.606 = 18.030$ m.

Q.23 Find the length of a side of a square, whose area is equal to the area of a rectangle with sides 240 m and 70 m.

Solution Area of square = Area of rectangle

$(Side)^2 = 240 \times 70$

$\Rightarrow$ side $= \sqrt{240 \times 70}$

$= \sqrt{10 \times 10 \times 2 \times 2 \times 3 \times 3 \times 7}$

$= 20\sqrt{42}$

$= 20 \times 6.481$

$= 20 \times 6.48$

$= 129.60$ m

∴ The length of side of square $= 129.60$ m