

# EXERCISE 3.8

# PAGE NO: 3.56

**1.** Find the square root of each of the following correct to three places of decimal. (i) 5 (ii) 7 (iii) 17 (iv) 20 (v) 66 (vi) 427 (vii) 1.7 (viii) 23.1 (ix) 2.5 (x) 237.615 (xi) 15.3215 (xii) 0.9 (xiii) 0.1 (xiv) 0.016 (xv) 0.00064 (xvi) 0.019 (xvii) 7/8 (xviii) 5/12 (xix) 2 1/2 (xx) 287 5/8 Solution: (i) 5 By using long division method 2.2360 5.000000 2 4 100 42 84 443 1600 1329 27100 4466 26796 44720 30400  $\therefore$  the square root of 5 is 2.236

#### (ii) 7





 $\therefore$  the square root of 7 is 2.646

#### (iii) 17

By using long division method

4.123		
4	17.000000	
	16	
81	1.00	
	81	
822	1900	
	1644	
8243	25600	
	24729	
82431	87100	
	82431	
	4669	

 $\therefore$  the square root of 17 is 4.123

## (iv) 20

4.4721		
4	20,000000	
	16	
84	400	
	336	
887	6400	
	6209	
8942	19100	
	17884	
89441	121600	
	89441	
	32159	



 $\therefore$  the square root of 20 is 4.472

**(v)** 66

By using long division method

8.1240		
8	66.000000	
	64	
161	200	
	161	
1622	3900	
	3244	
16244	65600	
	64976	
162480	62400	

 $\therefore$  the square root of 66 is 8.124



By using long division method



 $\therefore$  the square root of 427 is 20.664

#### (vii) 1.7 By using long divisio





 $\therefore$  the square root of 1.7 is 1.304

( <b>viii</b> ) 2	3.1	
By usir	ng long divi	sion method
	4.8062	
4	23100000	
	16	
88	710	
	704	
960	600	
	0	
9606	60000	
	57636	
96122	236400	
	192244	
	44156	

 $\therefore$  the square root of 23.1 is 4.806

#### (**ix**) 2.5

	1.5811
1	2,500 000
	1
25	150
	125
308	2500
	2464
3161	3600
	3161
31621	43900
	31621
	2279



 $\therefore$  the square root of 2.5 is 1.581

#### **(x)** 237.615

By using long division method

-	
	15.4147
1	237.615000
	1
25	137
	125
304	1261
	1216
3081	4550
	3081
30824	146900
	123296
308287	2360400
	2158009
	202391

 $\therefore$  the square root of 237.615 is 15.415

#### (**xi**) 15.3215

By using long division method

3.9142		
3	15321500	
	9	
69	632	
	621	
781	1115	
	781	
7824	33400	
	31296	
78282	210400	
	156564	
	53836	

 $\therefore$  the square root of 15.3215 is 3.914

(**xii**) 0.9 By using long division method



	0.9486	
0	0.900000	
	0	
9	090	
	81	
184	900	
	736	
1888	16400	
	15104	
18966	129600	
	113796	
	15804	

 $\therefore$  the square root of 0.9 is 0.949

#### (xiii) 0.1

By using long division method

0.3162		
0	0.100000	
	0	
3	10	
	9	
61	100	
	61	
626	3900	
	3756	
6322	14400	
	12644	
	1756	

 $\therefore$  the square root of 0.1 is 0.316

## (**xiv**) 0.016





 $\therefore$  the square root of 0.016 is 0.126

#### (**xv**) 0.00064

By using long division method



 $\therefore$  the square root of 0.00064 is 0.025

#### (**xvi**) 0.019

By using long division method



 $\therefore$  the square root of 0.019 is 0.138

(xvii) 7/8 By using long division method



	0.9354	
0	0.875000	
	0	
9	087	
	81	
183	650	
	549	
1865	10100	
	9325	
18704	77500	
	74816	
	2684	

 $\therefore$  the square root of 7/8 is 0.935



By using long division method



: the square root of 5/12 is 0.645

(xix) 2 1/2 By using long division method





 $\therefore$  the square root of 5/2 is 1.581



By using long division method



 $\therefore$  the square root of 2301/8 is 16.960

## 2. Find the square root of 12.0068 correct to four decimal places. **Solution:**





 $\therefore$  the square root of 12.0068 is 3.4651

# **3. Find the square root of 11 correct to five decimal places. Solution:**





 $\therefore$  the square root of 11 is 3.31662

4. Give that:  $\sqrt{2} = 1.414$ ,  $\sqrt{3} = 1.732$ ,  $\sqrt{5} = 2.236$  and  $\sqrt{7} = 2.646$ , evaluate each of the following: (i)  $\sqrt{(144/7)}$ (ii)  $\sqrt{(2500/3)}$ 

# Solution:

(i)  $\sqrt{(144/7)}$ 



Now let us simplify the given equation  $\sqrt{(144/7)} = \sqrt{(12 \times 12)}/\sqrt{7}$  = 12/2.646 = 4.535(ii)  $\sqrt{(2500/3)}$ Now let us simplify the given equation  $\sqrt{(2500/3)} = \sqrt{(5 \times 5 \times 10 \times 10)}/\sqrt{3}$   $= 5 \times 10/1.732$  = 50/1.732= 28.867

5. Given that √2 = 1.414, √3 = 1.732, √5 = 2.236 and √7 = 2.646 find the square roots of the following:
(i) 196/75
(ii) 400/63
(iii) 150/7
(iv) 256/5
(v) 27/50
Solution:

# (i) 196/75

Let us find the square root for 196/75  $\sqrt{(196/75)} = \sqrt{(196)} / \sqrt{(75)}$   $= \sqrt{(14 \times 14)} / \sqrt{(5 \times 5 \times 3)}$   $= 14 / (5 \sqrt{3})$   $= 14 / (5 \times 1.732)$ = 14/8.66

= 1.617

(ii) 400/63 Let us find the square root for 400/63  $\sqrt{(400/63)} = \sqrt{(400)} / \sqrt{(63)}$   $= \sqrt{(20 \times 20)} / \sqrt{(3 \times 3 \times 7)}$   $= 20 / (3 \sqrt{7})$   $= 20 / (3 \times 2.646)$  = 20/7.938= 2.520

(iii) 150/7 Let us find the square root for 150/7

https://byjus.com



$$\sqrt{(150/7)} = \sqrt{(150)} / \sqrt{(7)} = \sqrt{(3 \times 5 \times 5 \times 2)} / \sqrt{(7)} = (5\sqrt{3} \times \sqrt{2}) / (\sqrt{7}) = 5 \times 1.732 \times 1.414 / (2.646) = 12.245 / 2.646 = 4.628$$

(iv) 256/5

Let us find the square root for 256/5  $\sqrt{(256/5)} = \sqrt{(256)} / \sqrt{(5)}$   $= \sqrt{(16 \times 16)} / \sqrt{(5)}$   $= 16 / (\sqrt{5})$  = 16/2.236= 7.155

(v) 27/50 Let us find the square root for 27/50  $\sqrt{(27/50)} = \sqrt{(27)} / \sqrt{(50)}$   $= \sqrt{(3 \times 3 \times 3)} / \sqrt{(5 \times 5 \times 2)}$   $= (3\sqrt{3}) / (5\sqrt{2})$   $= (3 \times 1.732) / (5 \times 1.414)$  = 5.196 / 7.07= 0.735

