EXERCISE 3.6

Find the square root of:
(i) 441/961
(ii) 324/841
(iii) 4 29/29
(iv) 2 14/25
(v) 2 137/196
(vi) 23 26/121
(vii) 25 544/729
(viii) 75 46/49
(ix) 3 942/2209
(x) 3 334/3025
(xi) 21 2797/3364
(xii) 38 11/25
(xiii) 23 394/729
(xiv) 21 51/169
(xv) 10 151/225
Solution:
(i) 441/961
The square root of
√441/961 = 21/31

(ii) 324/841
The square root of
√324/841= 18/29

(iii) 4 29/29
The square root of
√(4 29/29) = √(225/49) = 15/7

(iv) 2 14/25
The square root of
√(2 14/25) = √(64/25) = 8/5

(v) $2\ 137/196$
The square root of
$\sqrt{2\ 137/196} = \sqrt{(529/196)} = 23/14$

(vi) $23\ 26/121$
The square root of
$\sqrt{(23\ 26/121)} = \sqrt{(2809/121)} = 53/11$

(vii) $25\ 544/729$
The square root of
$\sqrt{(25\ 544/729)} = \sqrt{(18769/729)} = 137/27$

(viii) $75\ 46/49$
The square root of
$\sqrt{(75\ 46/49)} = \sqrt{(3721/49)} = 61/7$

(ix) $3\ 942/2209$
The square root of
$\sqrt{(3\ 942/2209)} = \sqrt{(7569/2209)} = 87/47$

(x) $3\ 334/3025$
The square root of
$\sqrt{(3\ 334/3025)} = \sqrt{(9409/3025)} = 97/55$

(xi) $21\ 2797/3364$
The square root of
$\sqrt{(21\ 2797/3364)} = \sqrt{(73441/3364)} = 271/58$

(xii) $38\ 11/25$
The square root of
$\sqrt{(38\ 11/25)} = \sqrt{(961/25)} = 31/5$

(xiii) $23\ 394/729$
The square root of

√(23 394/729) = √(17161/729) = 131/27 = 4 23/27

(xiv) 21 51/169
The square root of
√(21 51/169) = √(3600/169) = 60/13 = 4 8/13

(xv) 10 151/225
The square root of
√(10 151/225) = √(2401/225) = 49/15 = 3 4/15

2. Find the value of:
(i) √80/√405
(ii) √441/√625
(iii) √1587/√1728
(iv) √72 ×√338
(v) √45 × √20
Solution:
(i) √80/√405
√80/√405 = √16/√81 = 4/9

(ii) √441/√625
√441/√625 = 21/25

(iii) √1587/√1728
√1587/√1728 = √529/√576 = 23/24

(iv) √72 ×√338
√72 ×√338 = √(2×2×2×3×3) ×√(2×13×13)
By using the formula √a × √b = √(a×b)
= √(2×2×2×3×3×2×13×13)
= 2^2 × 3 × 13
= 156

(v) √45 × √20
√45 × √20 = √(5×3×3) × √(5×2×2)
By using the formula √a × √b = √(a×b)
= √(5×3×3×5×2×2)
= 5 × 3 × 2

= 30

3. The area of a square field is 80 244/729 square metres. Find the length of each side of the field.

Solution:

We know that the given area = 80 244/729 m^2

= 58564/729 m^2

If L is length of each side

L^2 = 58564/729

L = √ (58564/729) = √58564/√729

= 242/27

= 8 26/27

∴ Length is 8 26/27

4. The area of a square field is 30 1/4m^2. Calculate the length of the side of the square.

Solution:

We know that the given area = 30 1/4 m^2

= 121/4 m^2

If L is length of each side then,

L^2 = 121/4

L = √(121/4) = √121/√4

= 11/2

∴ Length is 11/2

5. Find the length of a side of a square playground whose area is equal to the area of a rectangular field of dimensions 72m and 338 m.

Solution:

By using the formula

Area of rectangular field = l × b

= 72 × 338 m^2

= 24336 m^2

Area of square, L^2 = 24336 m^2

L = √24336

= 156 m

∴ Length of side of square playground is 156 m.