Question 1.

Solution:

(i) 441

= 3 x 3 x 7 x 7

3	441
3	147
7	49
7	7
	1

$= (3)^2 \times (7)^2 = (21)^2$

$\therefore$ 441 is a perfect square

(ii) $576 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3$

2	576
2	288
2	144
2	72
2	36
2	18
3	9
3	3
	1

$= (2)^2 \times (2)^2 \times (2)^2 \times (3)^2$

$= (2 \times 2 \times 2 \times 3)^2 = (24)^2$

$\therefore$ 576 is a perfect square

(iii) $11025 = 3 \times 3 \times 5 \times 5 \times 7 \times 7$

3	11025
3	3675
5	1225
5	245
7	49
7	7
	1

$= (3)^2 \times (5)^2 \times (7)^2$

$= (3 \times 5 \times 7)^2 = (105)^2$

$\therefore$ 11025 is a perfect square

(iv) $1176 = 2 \times 2 \times 2 \times 3 \times 7 \times 7$

2	1176
2	588
2	294
3	147
7	49
7	7
	1

$= (2)^2 \times 2 \times 3 \times (7)^2$

1176 is not a perfect square as it cannot be expressed as the product of pair of equal factors

(v) $5625 = 3 \times 3 \times 5 \times 5 \times 5 \times 5$

3	5625
3	1875
5	625
5	125
5	25
5	5
	1

$= (3)^2 \times (5)^2 \times (5)^2$

$= (3 \times 5 \times 5)^2 = (75)^2$

$\therefore$ 5625 is a perfect square

(vi) $9075 = 3 \times 5 \times 5 \times 11 \times 11$

3	9075
5	3025
5	605
11	121
11	11
	1

$= 3 \times (5)^2 \times (11)^2$

$\therefore$ 9075 is not a perfect square as it cannot be expressed as a product of pair of equal factors

(vii) $4225 = 5 \times 5 \times 13 \times 13$

5	4225
5	845
13	169
13	13
	1

$= (5)^2 \times (13)^2$

$= (5 \times 13)^2 = (65)^2$

$\therefore$ 4225 is a p fect square

(viii) $1089 = 3 \times 3 \times 11 \times 11$

3	1089
3	363
11	121
11	11
	1

$= (3)^2 \times (11)^2$

$= (3 \times 11)^2 = (33)^2$

$\therefore$ 1089 is a perfect square

Question 2.

Solution:

(i) 1225 = 5 x 5 x 7 x 7

5	1225
5	245
7	49
7	7
	1

$= (5)^2 \times (7)^2 = (5 \times 7)^2$

$= (35)^2$

Hence it is a perfect square and it is the square of 35

(ii) $2601 = 3 \times 3 \times 17 \times 17$

3	2601
3	867
17	289
17	17
	1

$= (3)^2 \times (17)^2 = (3 \times 17)^2 = (51)^2$

Hence it is a perfect square and it is the square of 56

(iii) $5929 = 7 \times 7 \times 11 \times 11$

7	5929
7	847
11	121
11	11
	1

$= (7)^2 \times (11)^2 = (7 \times 11)^2 = (77)^2$

It is a perfect square and is the the square of 77

(iv) $7056 = 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 7 \times 7$

2	7056
2	3528
2	1764
2	882
3	441
3	147
7	49
7	7
	1

$= (2)^2 \times (2)^2 \times (3)^2 \times (7)^2$

$= (2 \times 2 \times 3 \times 7)^2 = (84)^2$

$\therefore$ It is a perfect square and is of the square of 84

(v) $8281 = 7 \times 7 \times 13 \times 13$

7	8281
7	1183
13	169
13	13
	1

$= (7)^2 \times (13)^2$

$= (7 \times 13)^2 = (91)^2$

$\therefore$ It is a perfect square and is of the square of 91

Question 3.

Solution:

(i) Factors of 3675

3 x 5 x 5 x 7 x 7

3	3675
5	1225
5	245
7	49
7	7
	1

$= 3 \times (5)^2 \times (7)^2$

$\therefore$ In order to get a perfect square the given number should be multiplied by 3

(ii) $2156 = 2 \times 2 \times 7 \times 7 \times 11$

2	2156
2	1078
7	539
7	77
11	11
	1

$= (2)^2 \times (7)^2 \times 11$

In order to get a perfect square, the given number should be multiplied by 11

(iii) $3332 = 2 \times 2 \times 7 \times 7 \times 17$

2	3332
2	1666
7	833
7	119
17	17
	1

$= (2)^2 \times (7)^2 \times 17$

In order to get a perfect square, the given number should be multiplied by 17

(iv) $2925 = 3 \times 3 \times 5 \times 5 \times 13$

3	2925
3	975
5	325
5	65
13	13
	1

$= (3)^2 \times (5)^2 \times 13$

In order to get a perfect square, the given number must be multiplied by 13

(v) $9075 = 3 \times 5 \times 5 \times 11 \times 11$

3	9075
5	3025
5	605
11	121
11	11
	1

$= 3 \times (5)^2 \times (11)^2$

In order to get a perfect square, the given number must be multiplied by 3

(vi) $7623 = 3 \times 3 \times 7 \times 11 \times 11$

3	7623
3	2541
7	847
11	121
11	11
	1

$= (3)^2 \times (11)^2 \times 7$

In order to get a perfect square, the given number should be multiplied by 7

(vii) $3380 = 2 \times 2 \times 5 \times 13 \times 13$

2	3380
2	1690
5	845
13	169
13	13
	1

$= (2)^2 \times 5 \times (13)^2$

In order to get a perfect square, the given number must be multiplied by 5

(viii) $2475 = 3 \times 3 \times 5 \times 5 \times 11$

3	2475
3	825
5	275
5	55
11	11
	1

$= (3)^2 \times (5)^2 \times 11$

In order to get a perfect square the given number must be multiplied by 11

Question 4.

Solution:

(i) 1575

= 3 x 3 x 5 x 5 x 7

3	1575
3	525
5	175
5	35
7	7
	1

$= (3)^2 \times (5)^2 \times 7$

In order to get a perfect square, the given number must be divided by 7

(ii) $9075 = 3 \times 5 \times 5 \times 11 \times 11$

3	9075
5	3025
5	605
11	121
11	11
	1

$= 3 \times (5)^2 \times (11)^2$

In order to get a perfect square, the given number must be divided by 3

(iii) $4851 = 3 \times 3 \times 7 \times 7 \times 11$

3	4851
3	1617
7	539
7	77
11	11
	1

$= (3)^2 \times (7)^2 \times 11$

In order to get a perfect square, the given number be divided by 11

(iv) $3380 = 2 \times 2 \times 5 \times 13 \times 13$

2	3380
2	1690
5	845
13	169
13	13
	1

$= (2)^2 \times 5 \times (13)^2$

In order to get a perfect square, the given number must be divided by 5

(v) $4500 = 2 \times 2 \times 3 \times 3 \times 5 \times 5 \times 5$

2	4500
2	2250
3	1125
3	375
5	125
5	25
5	5
	1

$= (2)^2 \times (3)^2 \times (5)^2 \times 5$

In order to get a perfect square, the given number must be divided by 5

(vi) $7776 = 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 3 \times 3 \times 3$

2	7776
2	3888
2	1944
2	972
2	486
3	243
3	81
3	27
3	9
3	3
	1

$= (2)^2 \times (2)^2 \times 2 \times 3 \times (3)^2 \times (3)^2$

In order to get a perfect square, the given number must be divided by 2×3 *i.e.*, 6

(vii) $8820 = 2 \times 2 \times 3 \times 3 \times 5 \times 7 \times 7$

2	8820
2	4410
3	2205
3	735
5	245
7	49
7	7
	1

$= (2)^2 \times (3)^2 \times 5 \times (7)^2$

In order to get a perfect square, the given number must be divided by 5

(viii) $4056 = 2 \times 2 \times 2 \times 3 \times 13 \times 13$

2	4056
2	2028
2	1014
3	507
13	169
13	13
	1

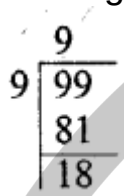
$= (2)^2 \times 2 \times 3 \times (13)^2$

In order to get a perfect square, the given number must be divided by 2×3 *i.e.*, 6

Question 5.

Solution:

The largest two digit number = 99



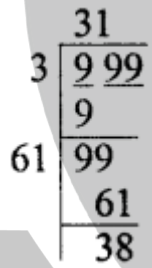
Finding the square root of 99, we get remainder = 18

∴The greatest two digit number which is a perfect square will be = 99 – 18 = 81

Question 6.

Solution:

The largest 3 digit number = 999



Finding the square root of 999, we get remainder = 38

∴The greatest 3 digit number which is a perfect square = 999 – 38 = 961