Class 8.Mathematics
Chapter 3.Square and Square Roots
Answer key

EXERCISE 3.1
1.1,4,1,9,6,9,4,0,6,5
2.Numbers ending in 2,3,7 or 8 are not perfect squares.
3.The number of zeroes at the end of a perfect square is always even.
4.3927 ending is 9
41543 ending is 9
5.(i) 1+3+5+7+9+11+13+15+17=81=9^2
(ii) 1+3+.....13=49=7^2
(iii) 1+3+.....23+25=169=13^2
(iv) 1+3+.....+15=64=8^2
(v) 1+3+.....+23= 144=12^2
6.(i) 15^2=225= 112+113
(ii) 13^2=169= 84+85
(iii) 19^2=361= 180+181
(iv) 27^2=729= 364+365
7.(i) 11^2 = 121
(ii). 101^2 = 10201
(iii). 1001^2 = 1002001
(iv). 10001^2 = 100020001
(v). 100001^2 = 10000200001
8. (i) 11^2 = 121
(ii). 101^2 = 10201
(iii). 10101^2 = 102030201
(iv). 100010001^2 = 10203040504030201
9. (i) 1^2+2^2+2^2 = 3^2
(ii) 2^2+3^2+6^2 = 7^2
(iii) 3^2+4^2+12^2 = 13^2
(iv). 4^2+5^2+20^2 = 21^2
(v). 5^2+6^2+30^2 = 31^2
(vi). 6^2+7^2+42^2 = 43^2
10.(i) 333^2.the sum of no of digits = 3
3^2 = 9
(ii) 666666^2= the sum of no of digits is
6.6^2 = 36
11. 6^2, 9^2, 11^2, 14^2
12. 1+3+5+7+9+11=36
1+3+5+7+9+11+13+15+17+19+21
+23+25 = 169
13. (196&225) 14^2 and 15^2 = 29
(625&676) 25^2 and 26^2 = 51
(10000&10201) 100^2 and 101^2= 201
14. 5^2 and 6^2 = 11

1000^2 and 1001^2 = 2001

EXERCISE 3.2

2. 35^2= 3×(3+1)100+25= 1225
   75^2= 7×(7+1)100+25= 5625
   85^2= 8×(8+1)100+25= 7225
   115^2= 11×(11+1)100+25= 13225
   225^2= 22×(22+1)100+25= 50625
3. 51 = (5^2+1)100+1^2= 2601
   54 = (5^2+4)100+4^2= 2916
   56 = (5^2+6)100+6^2= 3136
   58 = (5^2+8)100+8^2= 3364
   59 = (5^2+9)100+9^2= 3481
4. 509= (250+9)1000+9^2= 259081
   515= (250+15)1000+15^2=265225
   525=(250+25)1000+25^2=275625
   580=(250+80)1000+80^2=336400
   534=(250+34)1000+34^2=285156
5. 109=(100+9)^2=100^2+2×100×9+9^2
   10000+1800+81=11881
   211=(200+11)^2=40000+4400+121
   =44521
   125=(100+25)^2=10000+5000+625
   =15625
6. 191=(200-9)^2=40000-3600+81
   36481
   189= (200-11)^2= 40000-4400+121
   35721
   75= (100-25)^2= 10000-5000+625
   5625
7.(i) No is 8
   2m = 4. m= 2
   m^2-1 = 4^2-1= 16-1= 15
   m^2+1 = 4^2+1= 16+1= 17
   8,15,17 (8^2+15^2=17^2)
   (ii) No is 12
   2m=12; m=12/2= 6
   12,35,37
   (iii) No is 16
   2m=16; m=16/2= 8
   16,63,65
   (iv) No.is 18
   2m= 18; m= 18/2= 9
   18,80,82
   (v) No is 10
   2m= 10; m = 10/2= 5

10,24,26

Exercise 3.3

1. 92&132 are not perfect squares because the numbers are ending in 2.
2. 1 ,6 ,1 ,6
   1 & 9
3. Square root by repeated subtraction:
   81-1=80;80-3=77;77-5=72;
   72-7=65;65-9=56;56-11=45
   45-13=32;32-15=17;17-17=0
   Total 9times.√81=9
   √169=13
4. 256=2×2×2×2×2×2×2×2
   =2×2×2×2=16
   400= 2×2×5=20
   1225=5×7=35
   1936= 2×2×11=44
5. 7744=2×2×2×11= 88
   9604= 2×7×7= 98
   5929= 7×11= 77
   7056= 2×2×3×7= 84
   6400= 2×2×2×2×5=80
   11664= 2×2×3×3×3=108
   50625=5×5×3×3= 225
   14400= 2×2×2×3×5= 120
   5184= 2×2×2×3×3= 72
   10404= 2×3×17=102
6. 5,30; 2,54; 3,60; 7,84; 3,48;
   3,48; 6,126.
7. 5,6; 7,6; 5,27; 13,15; 5,35;
   11,64; 3,56; 5,18.
8. √2401 = 49
9. 6000-71=√5929= 77
10. 900
11. 900
12. 900

Exercise 3.4

1. 1,2,2,3,3
2. 4,4,5
3. 74,23,64,27,36,89,37,48,32,30,210
   165,234,222,316
4. 625,345,440
5. 38,43,76,81
6. 57,48; 31,70; 131,74; 41,22;
   40,135; 31,63; 2,20.

7. 4,23; 6,16; 4,81; 45,99; 1612,946
8. 99856
9. 9801
10. 100489
11. 156
12. 48m
13. 49
14. 16:25
15. 12cm
16. 1.6; 1.8; 3.6; 6.4; 2.3; 9.9; 5.6; 6.5
17. 2/25 or 0.08
