Exercise :- 6.1

ANSWER:- (1)

(i)   The number 81 contains its unit's place digit 1. So, square of 1 is 1.
        Hence, unit's digit of square of 81 is 1.

(ii)   The number 272 contains its unit's place digit 2. So, square of 2 is 4.
        Hence, unit's digit of square of 272 is 4.

(iii)   The number 799 contains its unit's place digit 9. So, square of 9 is 81.
        Hence, unit's digit of square of 799 is 1.

(iv)   The number 3853 contains its unit's place digit 3. So, square of 3 is 9.
        Hence, unit's digit of square of 3853 is 9.

(v)   The number 1234 contains its unit's place digit 4. So, square of 4 is 16.
        Hence, unit's digit of square of 1234 is 6.

(vi)   The number 26387 contains its unit's place digit 7. So, square of 7 is 49.
        Hence, unit's digit of square of 26387 is 9.

(vii)   The number 52698 contains its unit's place digit 8. So, square of 8 is 64.
        Hence, unit's digit of square of 52698 is 4.

(viii) The number 99880 contains its unit's place digit 0. So, square of 0 is 0.
        Hence, unit's digit of square of 99880 is 0.

(ix)   The number 12796 contains its unit's place digit 6. So, square of 6 is 36.
        Hence, unit's digit of square of 12796 is 6.

(x)   The number 55555 contains its unit's place digit 5. So, square of 5 is 25.
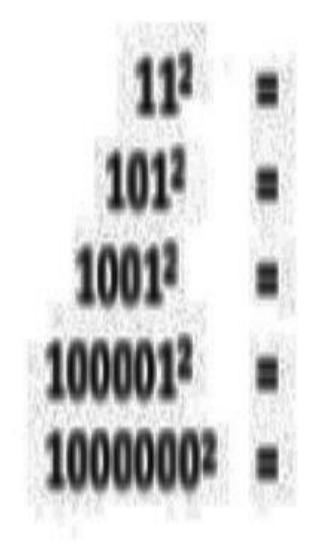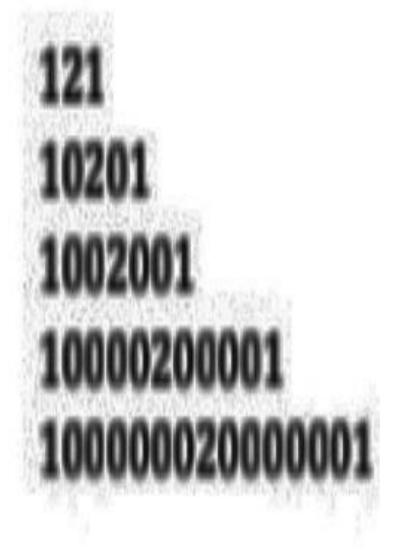   Hence, unit's digit of square of 55555 is 5.

ANSWER:- (2)

(i) Since, perfect square numbers contain their unit's place digit 1, 4, 5, 6, 9 and even numbers of 0.
Therefore 1057 is not a perfect square because its unit's place digit is 7.

(ii) Since, perfect square numbers contain their unit's place digit 0, 1, 4, 5, 6, 9 and even number of 0. Therefore 23453 is not a perfect square because its unit's place digit is 3.

(iii) Since, perfect square numbers contain their unit's place digit 0, 1, 4, 5, 6, 9 and even number of 0. Therefore 7928 is not a perfect square because its unit's place digit is 8.

(iv) Since, perfect square numbers contain their unit's place digit 0, 1, 4, 5, 6, 9 and even number of 0. Therefore 222222 is not a perfect square because its unit's place digit is 2.

(v) Since, perfect square numbers contain their unit's place digit 0, 1, 4, 5, 6, 9 and even number of 0. Therefore 64000 is not a perfect square because its unit's place digit is single 0.

(vi) Since, perfect square numbers contain their unit's place digit 0, 1, 4, 5, 6, 9 and even number of 0. Therefore 89722 is not a perfect square because its unit's place digit is 2.

(vii) Since, perfect square numbers contain their unit's place digit 0, 1, 4, 5, 6, 9 and even number of 0. Therefore 222000 is not a perfect square because its unit's place digit is triple 0.

(viii) Since, perfect square numbers contain their unit's place digit 0, 1, 4, 5, 6, 9 and even number of 0. Therefore 505050 is not a perfect square because its unit's place digit is 0.

ANSWER:- (3)

(i) 431 – Unit's digit of given number is 1 and square of 1 is 1. Therefore square of 431 would be an odd number.

(ii) 2826 – Unit's digit of given number is 6 and square of 6 is 36. Therefore square of 2826 would not be an odd number.

(iii) 7779 – Unit's digit of given number is 9 and square of 9 is 81. Therefore square of 7779 would be an odd number.

(iv) 82004 – Unit's digit of given number is 4 and square of 4 is 16. Therefore square of 82004 would not be an odd number.

ANSWER:- (4)

$$11^2 = 121$$

$$101^2 = 10201$$

$$1001^2 = 1002001$$

$$100001^2 = 1000020001$$

$$1000000^2 = 1000000000001$$

5. Observe the following pattern and supply the missing numbers:

$11^2 = 121$

$101^2 = 10201$

$10101^2 = 102030201$

$1010101^2 = $ ....

.........................$^2 = 10203040504030201$

Ans. $11^2 = 121$

$101^2 = 10201$

$10101^2 = 102030201$

$1010101^2 = 1020304030201$

$101010101^2 = 10203040504030201$

6. Using the given pattern, find the missi
numbers:

$$1^2 + 2^2 + 2^2 = 3^2$$

$$2^2 + 3^2 + 6^2 = 7^2$$

$$3^2 + 4^2 + 12^2 = 13^2$$

$$4^2 + 5^2 + \_^2 = 21^2$$

$$5^2 + \_^2 + 30^2 = 31^2$$

$$6^2 + \_^2 + \_^2 = 43^2$$

Ans. $1^2 + 2^2 + 2^2 = 3^2$

$$2^2 + 3^2 + 6^2 = 7^2$$

$$3^2 + 4^2 + 12^2 = 13^2$$

$$4^2 + 5^2 + 20^2 = 21^2$$

7. Without adding, find the sum:

(i) 1 + 3 + 5 + 7 + 9

(ii) 1 + 3 + 5 + 7 + 9 + 11 + 13 + 15 + 17 + 19

(iii) 1 + 3 + 5 + 7 + 9 + 11 + 13 + 15 + 17 + 19 + 21 + 23

Ans. (i) Here, there are five odd numbers. Therefore square of 5 is 25.

$\therefore$ 1 + 3 + 5 + 7 + 9 = 5^2 = 25

(ii) Here, there are ten odd numbers. Therefore square of 10 is 100.

$\therefore$ 1 + 3 + 5 + 7 + 9 + 11 + 13 + 15 + 17 + 19 = 10^2 = 100

(iii) Here, there are twelve odd numbers. Therefore square of 12 is 144.

$\therefore$ 1 + 3 + 5 + 7 + 9 + 11 + 13 + 15 + 17 + 19 + 21 + 23 = 12^2 = 144

8. (i) Express 49 as the sum of 7 odd numbers.

(ii) Express 121 as the sum of 11 odd numbers.

Ans. (i) 49 is the square of 7. Therefore it is the sum of 7 odd numbers.

49 = 1 + 3 + 5 + 7 + 9 + 11 + 13

(ii) 121 is the square of 11. Therefore it is the sum of 11 odd numbers

121 = 1 + 3 + 5 + 7 + 9 + 11 + 13 + 15 + 17 + 19 + 21

Question 9:

How many numbers lie between squares of the following numbers?

(i) 12 and 13 (ii) 25 and 26 (iii) 99 and 100

ANSWER:

We know that there will be $2n$ numbers in between the squares of the numbers n and $(n + 1)$.

(i) Between 12^2 and 13^2, there will be 2×12 = 24 numbers

(ii) Between 25^2 and 26^2, there will be 2×25 = 50 numbers

(iii) Between 99^2 and 100^2, there will be $2 \times 99 = 198$ numbers