VIII Test-6

1) Which of the following numbers would have digit 9 at units place?
$119^2, 229^2, 23^2, 24^2, 26^2$

2) How many natural numbers lie between 10^2 and 11^2?

3) Which of the following is a perfect square?
(a) 122 (b) 289 (c) 258 (d) 260

4) Without adding, find the sum of $1+3+5+7+9+11+13$.

5) Express 64 as the sum of 8 odd numbers.

6) Using the given pattern, find the value of x

$7^2+8^2+56^2 = 57^2$
$10^2+11^2+110^2 = x^2$

7) How many numbers lie between square of 85 and 86?

8) Why (i) 26623 (ii) 1026000 are not perfect squares?

9) Find the unit's digit of the square of (i) 236601
(ii) 20121208

10) Express 13^2 as sum of two consecutive integers.

VIII Test-6 (Solutions)

1)

Number	unit place
119^2	1
229^2	1
23^2	9
24^2	6
26^2	6

Thus 23^2 ends with digit 9.

2) We know that there are $2n$ natural numbers between n^2 and $(n+1)^2$

∴ There are $2 \times 10 = 20$ natural numbers between 10^2 and 11^2.

3) 289 (b)

4) $1+3+5+7+9+11+13 = 7^2 = 49$

5) $64 = 8^2 = 1+3+5+7+9+11+13+15$

6) $x = 111$

7) There are $2n$ natural numbers between n^2 and $(n+1)^2$

∴ There are $85 \times 2 = 170$ natural numbers between 85^2 and 86^2

8) (i) We know that perfect square numbers end with digit 0, 1, 4, 5, 6 or 9.
26623 ends with digit 3. Hence it is not a perfect square

(ii) We know that perfect square numbers end with even number of zeroes.
Thus 1026000 is not a perfect square number since it ~~has~~ ends with only 3 zeroes.

9)

number	unit digit
236601^2	1
20121208^2	4

10) $13^2 = \frac{13^2-1}{2} + \frac{13^2+1}{2} = \frac{169-1}{2} + \frac{169+1}{2} = \frac{168}{2} + \frac{170}{2} = 84 + 85$