Worksheet -12 Subject: - Mathematics Class: - VIII Teacher: - Ms. Neeru

Name: _____ Class & Sec: _____ Roll No. _____ Date: __.08.2020

Ex 6.1

Question 7:

Without adding, find the sum:

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

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

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

Answer 7:

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

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

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

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

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

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

Question 8:

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

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

Answer 8:

(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 9:

(i) Since, non-perfect square numbers between n^2 and $(n+1)^2$ are $2n$.

Here, $n = 12$

Therefore, non-perfect square numbers between 12 and 13 = $2n = 2 \times 12 = 24$

(ii) Since, non-perfect square numbers between n^2 and $(n+1)^2$ are $2n$.

Here, $n = 25$

Therefore, non-perfect square numbers between 25 and 26 = $2n = 2 \times 25 = 50$

(iii) Since, non-perfect square numbers between n^2 and $(n+1)^2$ are $2n$.

Here, $n = 99$

Therefore, non-perfect square numbers between 99 and 100 = $2n = 2 \times 99 = 198$

Exercise 6.2

Question 1:

Find the squares of the following numbers:

(i) 32
(ii) 35
(iii) 86
(iv) 93
(v) 71
(vi) 46

Answer 1:

(i) $(32)^2 = (30+2)^2 = (30)^2 + 2\times30\times2 + (2)^2$ $\left[\because (a+b)^2 = a^2+2ab+b^2\right]$

$= 900 + 120 + 4 = 1024$

(ii) $(35)^2 = (30+5)^2 = (30)^2 + 2\times30\times5 + (5)^2$ $\left[\because (a+b)^2 = a^2+2ab+b^2\right]$

$= 900 + 300 + 25 = 1225$

(iii) $(86)^2 = (80+6)^2 = (80)^2 + 2\times80\times6 + (6)^2$ $\left[\because (a+b)^2 = a^2+2ab+b^2\right]$

$= 1600 + 960 + 36 = 7386$

(iv) $(93)^2 = (90+3)^2 = (90)^2 + 2\times90\times3 + (3)^2$ $\left[\because (a+b)^2 = a^2+2ab+b^2\right]$

$= 8100 + 540 + 9 = 8649$

(v) $(71)^2 = (70+1)^2 = (70)^2 + 2\times70\times1 + (1)^2$ $\left[\because (a+b)^2 = a^2+2ab+b^2\right]$

$= 4900 + 140 + 1 = 5041$

(vi) $(46)^2 = (40+6)^2 = (40)^2 + 2\times40\times6 + (6)$ $\left[\because (a+b)^2 = a^2+2ab+b^2\right]$

$= 1600 + 480 + 36 = 211$