Operations on Whole Numbers Ex 4.5 Q5

Answer :

$6 \times 2 - 5 = 7$

$7 \times 3 - 12 = 9$

$8 \times 4 - 21 = 11$

$9 \times 5 - 32 = 13$

$10 \times 6 - 45 = 15$

$11 \times 7 - 60 = 17$

$12 \times 8 - 77 = 19$

Operations on Whole Numbers Ex 4.5 Q6

Answer :

(i) $1 + 3 + 5 + 7 + 9 + 11 = 6 \times 6 = 36$

(ii) $1 + 3 + 5 + 7 + 9 + 11 + 13 + 15 = 8 \times 8 = 64$

(iii) $21 + 23 + 25 + \ldots + 51 =$

$(21 + 23 + 25 + \ldots + 51)$ can also be written as $(1 + 3 + 5 + 7 + \ldots + 49 + 51) - (1 + 3 + 5 + \ldots + 17 + 19)$.

$(1 + 3 + 5 + 7 + \ldots + 49 + 51) = 26 \times 26 = 676$

and, $(1 + 3 + 5 + \ldots + 17 + 19) = 10 \times 10 = 100$

Now,

$(21 + 23 + 25 + \ldots + 51) = 676 - 100 = 576$

Operations on Whole Numbers Ex 4.5 Q7

Answer :

The next two steps are as follows:

$1 \times 1 + 2 \times 2 + 3 \times 3 + 4 \times 4 + 5 \times 5 = \frac{5 \times 6 \times 11}{6} = 55$

$1 \times 1 + 2 \times 2 + 3 \times 3 + 4 \times 4 + 5 \times 5 + 6 \times 6 = \frac{6 \times 7 \times 13}{6} = 91$

Operations on Whole Numbers Ex 4.5 Q8

Answer :

(i) $1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + 10 = \frac{10 \times 11}{2} = 55$

(ii) $50 + 51 + 52 + \ldots + 100$

This can also be written as $(1 + 2 + 3 + \ldots + 99 + 100) - (1 + 2 + 3 + 4 + \ldots + 47 + 49)$

Now, $(1 + 2 + 3 + \ldots + 99 + 100) = \frac{100 \times 101}{2}$

and, $(1 + 2 + 3 + 4 + \ldots + 47 + 49) = \frac{49 \times 50}{2}$

So, $(50 + 51 + 52 + \ldots + 100) = \frac{100 \times 101}{2} - \frac{49 \times 50}{2} = 5050 - 1225 = 3825$

(iii) $2 + 4 + 6 + 8 + 10 + \ldots + 100$

This can also be written as $2 \times (1 + 2 + 3 + 4 + \ldots + 49 + 50)$

Now, $(1 + 2 + 3 + 4 + \ldots + 49 + 50) = \frac{50 \times 51}{2} = 1275$

$\therefore (2 + 4 + 6 + 8 + 10 + \ldots + 100) = 2 \times 1275 = 2550$

********** END **********