

EXERCISE 21B

Find the mean of 53, 61, 60, 67 and 64. Solution:

The given numbers are 53, 61, 60, 67 and 64

We know that $n = 5$

So Mean = $(53 + 61 + 60 + 67 + 64) / 5$

By further calculation

$$= 305/5$$

$$= 61$$

1. Find the mean of first six natural numbers.

Solution:

Here the first six natural numbers are 1, 2, 3, 4, 5, 6

We know that $n = 6$

So Mean = $(1 + 2 + 3 + 4 + 5 + 6) / 6$

By further calculation

$$= 21/6$$

$$= 3.5$$

2. Find the mean of first ten odd natural numbers.

Solution:

Here the first ten odd natural numbers are 1, 3, 5, 7, 9, 11, 13, 15, 17, 19

We know that $n = 10$

So Mean = $(1 + 3 + 5 + 7 + 9 + 11 + 13 + 15 + 17 + 19) / 10$

By further calculation

$$= 100/10$$

$$= 10$$

3. Find the mean of all factors of 10.

Solution:

Here the factors of 10 are 2 and 5

We know that $n = 2$

So Mean = $(2 + 5) / 2$

By further calculation

$$= 7/2$$

$$= 3.5$$

4. Find the mean of $x + 3$, $x + 5$, $x + 7$, $x + 9$ and $x + 11$.

Solution:

The given terms are $x + 3$, $x + 5$, $x + 7$, $x + 9$ and $x + 11$

We know that $n = 5$

So Mean = $[(x + 3) + (x + 5) + (x + 7) + (x + 9) + (x + 11)] / 5$

By further calculation

$$= (5x + 35) / 5$$

$$\begin{aligned} &\text{Taking 5 as common} \\ &= [5(x + 7)]/5 \\ &= x + 7 \end{aligned}$$

5. If different values of variable x are 19.8, 15.4, 13.7, 11.71, 11.8, 12.6, 12.8, 18.6, 20.5 and 21.1, find the mean.

Solution:

The given values are 19.8, 15.4, 13.7, 11.71, 11.8, 12.6, 12.8, 18.6, 20.5 and 21.1

We know that $n = 10$

So Mean = $(19.8 + 15.4 + 13.7 + 11.71 + 11.8 + 12.6 + 12.8 + 18.6 + 20.5 + 21.1)/10$

By further calculation

$$= 158.01/10$$

$$= 15.801$$

6. The mean of a certain number of observations is 32. Find the resulting mean, if each observation is,

(i) increased by 3

(ii) decreased by 7

(iii) multiplied by 2

(iv) divided by 0.5

(v) increased by 60%

(vi) decreased by 20%

Solution:

(i) Increased by 3

Here the observed mean = 32

When increased by 3

$$\text{The resulting mean} = 32 + 3 = 35$$

(ii) Decreased by 7

Here the observed mean = 32

When decreased by 7

$$\text{The resulting mean} = 32 - 7 = 25$$

(iii) Multiplied by 2

Here the observed mean = 32

When multiplied by 2

$$\text{The resulting mean} = 32 \times 2 = 64$$

(iv) Divided by 0.5

Here the observed mean = 32

When divided by 0.5

$$\text{The resulting mean} = 32/0.5 = 64$$

(v) Increased by 60%

Here the observed mean = 32

When increased by 60%

$$\text{The resulting mean} = 32 + 60/100$$

Taking LCM

$$= (3200 + 60)/100$$

$$= 3260/100$$
$$= 32.6$$

(vi) Decreased by 20%

Here the observed mean = 32

When decreased by 20%

The resulting mean = $32 - 20/100$

Taking LCM

$$= (3200 - 20)/100$$

$$= 3180/100$$

$$= 31.8$$

7. The pocket expenses (per day) of Anuj, during a certain week, from monday to saturday were ₹85.40, ₹88.00, ₹86.50, ₹84.75, ₹82.60 and ₹87.25. Find the mean pocket expenses per day.

Solution:

It is given that the pocket expenses (per day) during a certain week are ₹85.40, ₹88.00, ₹86.50, ₹84.75, ₹82.60 and ₹87.25

We know that $n = 6$

$$\text{So the mean pocket expenses per day} = (85.40 + 88.00 + 86.50 + 84.75 + 82.60 + 87.25)/6$$

By further calculation

$$= 514.5/6$$

$$= ₹85.75$$

Hence, the mean pocket expenses per day are ₹85.75.

8. If the mean of 8, 10, 7, $x + 2$ and 6 is 9, find the value of x .

Solution:

It is given that

Mean of 8, 10, 7, $x + 2$ and 6 is 9

We can write it as

$$(8 + 10 + 7 + x + 2 + 6)/6 = 9$$

By further calculation

$$(x + 33)/6 = 9$$

So we get

$$x + 33 = 9 \times 6$$

$$x = 54 - 33 = 21$$

9. Find the mean of first six multiples of 3.

Solution:

We know that the first six multiples of 3 are 3, 6, 9, 12, 15, 18

Here $n = 6$

$$\text{So mean} = (3 + 6 + 9 + 12 + 15 + 18)/6$$

By further calculation

$$= 63/6$$

$$= 10.5$$

10. Find the mean of first five prime numbers.

Solution:

Here the first five prime numbers are 2, 3, 5, 7, 11

We know that $n = 5$

$$\text{So Mean} = (2 + 3 + 5 + 7 + 11) / 5$$

By further calculation

$$= 28/5$$

$$= 5 \frac{3}{5}$$

$$= 5.6$$

11. The mean of six numbers: $x-5$, $x-1$, x , $x+2$, $x+4$ and $x+12$ is 15. Find the mean of first four numbers.

Solution:

It is given that the mean of six numbers $x-5$, $x-1$, x , $x+2$, $x+4$ and $x+12$ is 15

$$\text{So Mean} = [(x-5) + (x-1) + x + (x+2) + (x+4) + (x+12)] / 6$$

By further calculation

$$15 = (x-5 + x-1 + x + x+2 + x+4 + x+12) / 6$$

So we get

$$15 = (12 + 6x) / 6$$

By cross multiplication

$$12 + 6x = 90$$

$$6x = 90 - 12 = 78$$

$$x = 78/6 = 13$$

So the six numbers are $(13-5)$, $(13-1)$, 13 , $(13+2)$, $(13+4)$, $(13+12) = 8, 12, 13, 15, 17, 25$

Here the mean of first four numbers $= (8 + 12 + 13 + 15) / 4 = 48/4 = 12$

12. Find the mean of squares of first five whole numbers.

Solution:

Here the first five whole numbers are 0, 1, 2, 3, 4

So the square of whole numbers $= 0^2, 1^2, 2^2, 3^2, 4^2 = 0, 1, 4, 9, 16$

We know that $n = 5$

$$\text{So Mean} = (0 + 1 + 4 + 9 + 16) / 5$$

By further calculation

$$= 30/5$$

$$= 6$$

13. If the mean of 6, 4, 7, p and 10 is 8, find the value of p.

Solution:

It is given that the mean of 6, 4, 7, p and 10 is 8

$$\text{So Mean} = (6 + 4 + 7 + p + 10) / 5$$

By further calculation

$$(27 + p) / 5 = 8$$

So we get

$$27 + p = 40$$

$$p = 40 - 27 = 13$$

14. Find the mean of first six multiples of 5.

Solution:

Here the first six multiples of 5 are 5, 10, 15, 20, 25 and 30

We know that $n = 6$

So Mean = $(5 + 10 + 15 + 20 + 25 + 30) / 6$

By further calculation

= $105/6$

= 17.5



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