

CBSE Sample Paper Maths Set – A Answer Class 7

Section - A

1. 15
2. 5
3. 9.
4. $3\frac{13}{56}$
5. -5.
6. 36^0
7. 65%
8. 32 cm.

Section - B

9. (i) Let x be the required angle.
Then $x+x = 90^\circ \Rightarrow 2x = 90^\circ \Rightarrow x = 45^\circ$
Therefore, the angle which is equal to its complement is 45° .
- (ii) Let x be the required angle.
Then $x+x = 180^\circ \Rightarrow 2x = 90^\circ \Rightarrow x = 90^\circ$
Therefore, the angle which is supplement to itself is 90° .
10. Taking $x = 1$ we get
LHS = $3(1) + 5 = 8 \neq$ RHS
Hence $x = 1$ is not a solution of the equation.

Taking $x = 2$

$$\text{LHS} = 3(2) + 5 = 11 = \text{RHS}$$

∴ $x = 2$ is the solution of the equation.

11.

$$\begin{aligned} \text{The distance between the first and the last plant (i.e. fourth plant)} &= \frac{3}{7} + \frac{3}{7} + \frac{3}{7} \\ &= \frac{9}{7} = 1\frac{2}{7}\text{m} \end{aligned}$$

Alternative Method :

$$\begin{aligned} \text{The distance between the first and the last plant (i.e. fourth plant)} &= 3 \times \frac{3}{7} \\ &= \frac{9}{7} = 1\frac{2}{7}\text{m} \end{aligned}$$

12. According to the question, $1005 - \{(-545) + 125\}$

$$\begin{aligned} &= 1005 - (-420) \\ &= 1005 + 420 \\ &= 1425. \end{aligned}$$

13. $100 - 10x^3$

$$\begin{aligned} &= 100 - (10 \times 2^3) \\ &= 100 - (10 \times 8) \\ &= 100 - 80 \\ &= 20 \end{aligned}$$

14. $a^2 + 2ab + b^2$

$$\begin{aligned} &= 3^2 + 2 \times 3 \times 2 + 2^2 \\ &= 9 + 12 + 4 \\ &= 25 \end{aligned}$$

Or,

Diameter of the circle(d) = 10 cm

$$\begin{aligned} \text{Circumference of circle} &= \pi d \\ &= 3.14 \times 10\text{cm} \\ &= 31.4 \text{ cm} \end{aligned}$$

So, the circumference of a circle of diameter 10 cm is 31.4 cm

Section - C

15. (i) l is parallel to m .

(ii) l is not parallel to m .

(iii) l is parallel to m .

16. Decrease in loss = $20 - 5 = 15$ Lacs

$$\text{Loss decrease per cent} = \frac{15}{20} \times 100 = 75\%$$

17.

$$2(x - 2) + 3(4x - 1) = 0$$

$$\Rightarrow 2x - 4 + 12x - 3 = 0$$

$$\Rightarrow 2x + 12x = 4 + 3$$

$$\Rightarrow 14x = 7$$

$$x = \frac{7}{14} = \frac{1}{2}$$

Or,

Let the breadth be x m

Then the length = $2x$ m

Perimeter = 150 m

$$2(2x + x) = 150$$

$$\Rightarrow 6x = 150$$

$$\Rightarrow x = 25$$

Therefore, the breadth of the rectangular field is 25 m and the length is 50 m.

18. $(150 m + 11 n)^2 - (150 m - 11 n)^2$

$$= (150 \times 3 + 11 \times 1)^2 - (150 \times 3 - 11 \times 1)^2$$

$$= (450 + 11)^2 - (450 - 11)^2$$

$$= 461^2 - 439^2$$

$$= 212521 - 192721$$

$$= 19800$$

19. Arranging in ascending order 155, 156, 159, 160, 160, 160, 162, 163, 163, 164, 165, 165, 165, 168, 168

(i) Range = $168 - 155 = 13$

(ii) Mode = 160 and 165 occurs 3 times Therefore, modes are 160 and 165 both.

(iii) Median = 163 (central value).

20. 1) True

2) False: $(1/2) \times 36 = 18$

3) False: since $3.3 + 3.3 + 3.3 = 9.9$ cm

21.

$$\begin{aligned} & \frac{1}{2} + \frac{3}{7} - 1\frac{1}{4} - 2\frac{1}{2} \\ &= \frac{1}{2} + \frac{3}{7} - \frac{5}{4} - \frac{5}{2} \text{ (taking L.C.M of (2, 7, 4, 2))} \\ &= \frac{14 + 12 + 35 - 70}{28} \\ &= \frac{26 - 105}{28} \\ &= \frac{-79}{28} \end{aligned}$$

22.

(i) $(-5) \times (-1) = 5$

(ii) Zero divided by an integer other than zero is equal to zero

$\therefore 0 \div 55 = 0$

(iii) Let $x \div (-17) = -4$

$\Rightarrow x = -4 \times (-17)$

$\Rightarrow x = 68$

23. Length of rectangular garden = 65 cm

and breadth = 50cm

Area of path parallel to length = 65×2
= 130m^2

Area of path parallel to breadth = 50×2
= 100m^2

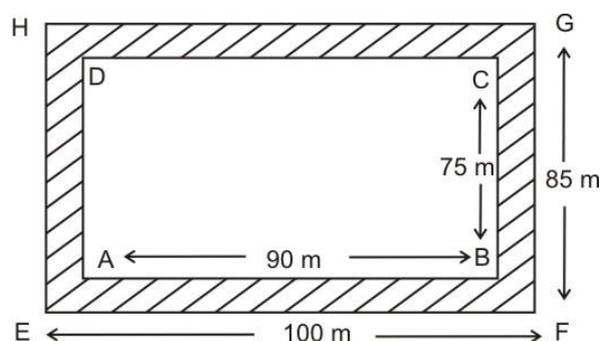
Area of common square = 2×2
= 4m^2

Area of paths = $130 + 100 - 4$
= 226m^2

Rate of construction of path = Rs.69 per m^2

Cost of construction of path = 226×69
= Rs. 15594

24. Let us represent the garden by rectangle ABCD and the path around it by shaded region as shown in figure :



Then, clearly,

Area of the path = Area of rectangle EFGH – Area of rectangle ABCD

From the figure, we have

$$\begin{aligned} EF &= 90 \text{ m} + 5 \text{ m} + 5 \text{ m} \\ &= 100 \text{ m} \end{aligned}$$

and
$$\begin{aligned} FG &= 75 \text{ m} + 5 \text{ m} + 5 \text{ m} \\ &= 85 \text{ m} \end{aligned}$$

Now, area of rectangle EFGH = $100 \text{ m} \times 85 \text{ m} = 8500 \text{ m}^2$

And area of rectangle ABCD = $90 \text{ m} \times 75 \text{ m} = 6750 \text{ m}^2$

Therefore,

$$\begin{aligned} \text{Area of path} &= \text{Area of rectangle EFGH} - \text{Area of rectangle ABCD} \\ &= 8500 \text{ m}^2 - 6750 \text{ m}^2 \\ &= 1750 \text{ m}^2 \end{aligned}$$

Section - D

25. (i)

$$2y + \frac{5}{2} = \frac{37}{2}$$

$$2y = \frac{37}{2} - \frac{5}{2}$$

$$= \frac{37-5}{2}$$

$$= \frac{32}{2}$$

$$2y = 16$$

$$y = \frac{16}{2} = 8$$

(ii)

We have,

$$\frac{5x}{2} = \frac{25}{2}$$

$$5x = \frac{25}{2} \times 2$$

$$x = \frac{25}{5} = 5$$

(iii)

We have,

$$6z + 10 = -2$$

$$6z = -2 - 10$$

$$z = \frac{-12}{6}$$

$$= -2$$

(iv)

Since,

$$\frac{a}{4} + 7 = 5$$

$$\frac{a}{4} = 5 - 7$$

$$a = 4 \times -2$$

$$a = -8$$

26.

$$\text{a) } 0.5x - (0.8 - 0.2x) = 0.2 - 0.3x$$

$$\Rightarrow 0.5x - 0.8 + 0.2x = 0.2 - 0.3x$$

$$\Rightarrow 0.5x + 0.2x + 0.3x = 0.2 + 0.8$$

$$\Rightarrow 1.0x = 1.0$$

$$\Rightarrow x = 1$$

$$\text{b) } \frac{x+2}{x-2} = \frac{7}{3}$$

$$\Rightarrow 3(x+2) = 7(x-2)$$

$$\Rightarrow 3x + 6 = 7x - 14$$

$$\Rightarrow 3x - 7x = -14 - 6$$

$$\Rightarrow -4x = -20$$

$$\Rightarrow x = \frac{-20}{-4}$$

$$\Rightarrow x = 5$$

27.

Marks given for correct answer = 3

Marks given for wrong answer = - 1

Total number of questions = 15

(i) Number of correct answers of

Gurpreet = 9

Number of incorrect answers of

Gurpreet = $15 - 9$

= 6

Total score of Gurpreet = $9(3) + 6(-1)$

= $27 - 6$

= 21

(ii) Number of correct answers of

her friend = 5

Number of incorrect answers of

her friend = $15 - 5 = 10$

Total score of Gurpreet's friend = $5(3) + 10(-1)$

= $15 - 10 = 5$

28. Number of questions in test = 20

Marks awarded for correct answer = 5

Marks awarded for incorrect answer = - 2

Marks awarded for not attempting the

questions = 0

(i) Mohan got correct answers = 14

Mohan got incorrect answers = 6

Mohan scored total marks = $14(5) + 6(-2)$

= $70 - 12$

= 58

(ii) Reshma got correct answers = 15

Reshma got incorrect answers = 5

Reshma scored total marks = $15(5) + 5(-2)$

= $75 - 10$

= 65.

(iii) Heena got correct answers = 10

Heena got incorrect answers = 8

Number of unattempted questions = $20 - 18$

29. Scores of 15 students in a mathematics test are
19, 25, 23, 20, 9, 20, 15, 10, 5, 16, 25, 20, 24, 12, 20

Arranging these scores in ascending order,

5, 9, 10, 12, 15, 16, 19, 20, 20, 20, 20, 23, 24, 25, 25

Mode of a given data is that value of observation which occurs for the most number of times.

Therefore, mode of this data = 20 (20 occurs 4 times,
i.e., maximum number of times).

Median of a given data is the middle observation when the data is arranged in ascending or descending order.

As there are 15 terms in the given data,
therefore, the median = $\{(15 + 1)/2\}^{\text{th}}$ Observation
= 8th observation
= 20

Hence, median = 20

Yes, both are same.

30. The weights of 15 students are –

38, 42, 35, 37, 45, 50, 32, 43, 43, 40, 36, 38, 43, 38, 47

Arranging these weights in ascending order,

32, 35, 36, 37, 38, 38, 38, 40, 42, 43, 43, 43, 45, 47, 50

(i) Mode of a given data is that value of observation which occurs for the most number of times.

Here, 38 and 43 both occur 3 times (i.e., maximum number of times).

Therefore, mode of the given data = 38 and 43

The median of the given data is the middle observation when the data is arranged in ascending or descending order.

As there are 15 terms in the given data,
therefore, the median = $\{(15 + 1)/2\}^{\text{th}}$ observation

= 8th observation

= 40

Hence, median = 40

(ii) Yes, there are 2 modes for the given data.

31.

(i) Putting $a = 3$, $b = 2$ in $(a + b)^2$, we get

$$\begin{aligned}(a + b)^2 &= (3 + 2)^2 \\ &= (5)^2 \\ &= 25\end{aligned}$$

(ii) Putting $a = 3$, $b = 2$ in $13(7a - 4b)$, we get

$$\begin{aligned}13(7a - 4b) &= 13(7 \times 3 - 4 \times 2) \\ &= 13(21 - 8) \\ &= 13(13) \\ &= 169\end{aligned}$$

(iii) Putting $a = 3$, $b = 2$ in $a^2 + 2ab + b^2$, we get

$$\begin{aligned}a^2 + 2ab + b^2 &= (3)^2 + 2(3)(2) + (2)^2 \\ &= 9 + 12 + 4 \\ &= 25\end{aligned}$$

(iv) Putting $a = 3$, $b = 2$ in $a^3 - b^3$, we get

$$\begin{aligned}a^3 - b^3 &= (3)^3 - (2)^3 \\ &= 27 - 8 \\ &= 19\end{aligned}$$

32.

The part of money that the three boys will get can be written in terms of ratios as 2 : 3 : 5.

Total of the parts is $2 + 3 + 5 = 10$.

Total money = Rs.250

$$\text{Ravi got money} = \frac{2}{10} \times 250 = \text{Rs.50}$$

$$\text{Raju got money} = \frac{3}{10} \times 250 = \text{Rs.75}$$

$$\text{Roy got money} = \frac{5}{10} \times 250 = \text{Rs.125}$$

$$\begin{aligned} \text{Percentage of money Ravi got} &= \frac{50}{250} \times 100 \\ &= \frac{1}{5} \times 100 \\ &= 20\% \end{aligned}$$

$$\begin{aligned} \text{Percentage of money Raju got} &= \frac{75}{250} \times 100 \\ &= \frac{3}{10} \times 100 \\ &= 30\% \end{aligned}$$

$$\begin{aligned} \text{Percentage of money Roy got} &= \frac{125}{250} \times 100 \\ &= \frac{1}{2} \times 100 \\ &= 50\% \end{aligned}$$

33.

Since,

Area of rectangle = Area of square

$$\text{length} \times \text{breadth} = (\text{side})^2$$

$$\text{length} \times 25 = (40)^2$$

$$\text{length} = 1600/25$$

$$\text{length} = 64 \text{ cm}$$

$$\begin{aligned} \text{Perimeter of rectangle} &= 2(\text{length} + \text{breadth}) \\ &= 2(64 + 25) \end{aligned}$$

$$= 2(89)$$

$$= 178 \text{ cm.}$$

34.

(i) Sum of $13x - 8y + 11$ and $-y - 11$ is

$$\begin{array}{r} 13x - 8y + \cancel{11} \\ - y - \cancel{11} \\ \hline \end{array}$$

$$13x - 9y$$

Subtracting $3x - 3y - 11$ from $13x - 9y$, we get

$$13x - 9y$$

$$\underline{\pm 3x \mp 3y \mp 11}$$

$$\underline{10x - 6y + 11}$$

(ii) Sum of $4 + 3x$ and $5 - 4x + 2x^2$ is

$$4 + 3x$$

$$\underline{5 - 4x + 2x^2}$$

$$\underline{9 - x + 2x^2}$$

Sum of $3x^2 - 5x$ and $-x^2 + 2x + 5$ is

$$3x^2 - 5x$$

$$\underline{-x^2 + 2x + 5}$$

$$\underline{2x^2 - 3x + 5}$$

Now, subtracting $2x^2 - 3x + 5$ from $9 - x + 2x^2$, we get

$$2x^2 - x + 9$$

$$\underline{\pm 2x^2 \mp 3x \pm 5}$$

$$\underline{0 + 2x + 4}$$