DAILY PRACTICE PROBLEM

Algebra DPP-01

Multiple choice questions

1. The value of variable in the expression is

(1) not fixed (2) fixed (3) zero (4) one

2. The quantities with fixed numerical values are called

(1) constants (2) variables (3) expression (4) None of these

3. The length of an edge of a cube is p. The total length of its edges is

(1) 3p (2) 4p (3) 12p (4) 6p

4. The expression for '2 subtracted from a' is

(1) a – 2 (2) a + 2 (3) 2 – a (4) –2 – a

5. The expression for '3 times of x to which 2 is added' is

(1) 3x + 2 (2) 2x + 3 (3) 3x – 2 (4) None of these

Subjective questions

6. How many variables are present in the expression x + y + z?

7. Rahul scores 50 marks in English and x marks in Hindi. What is the total score in the two subjects?

8. The side of an equilateral triangle is x. Find the perimeter.

9. The side of a regular pentagon is x. What is the total length of its edges?

10. If Radha's present age is x years, what was her age in years, 5 years back?

SOLUTIONS DPP-01

1. **Option (1)**

The value of variable in the expression is not fixed.

2. **Option (1)**

The quantities with fixed numerical values are called constants.

3. **Option (3)**

The total length of its edges = 12p

4. **Option (1)**

The expression for '2 subtracted from a' is a – 2.

5. **Option (1)**

The expression for '3 times of x to which 2 is added' is 3x + 2.

6. 3 variables are present in the expression x + y + z.

7. Total score in the two subjects = 50 + x.

8. Perimeter of equilateral triangle = 3 × side

= 3 × x

= 3x

9. Total length of its edges = 5 × side

= 5x

10. Radha's age in years, 5 years back is x – 5.

DAILY PRACTICE PROBLEM

Algebra DPP-02

Multiple choice questions

1. The coefficient of x in $-2x$ is

(1) 2 (2) -2 (3) $-2x$ (4) None of these

2. Which of the following is a monomial?

(1) $3x$ (2) $3x + 4y$ (3) $15 + x$ (4) $5xy + 7$

3. How many terms are there in expression $2xy + y + z$?

(1) 1 (2) 2 (3) 3 (4) None of these

4. The numerical factor of $7x^2y$is

(1) 3 (2) 5 (3) 6 (4) 7

5. Which of the following is a quadrinomial ?

(1) $2x + 3y + z$ (2) $a + b + c + d$ (3) $5x + 3y + z$ (4) None of these

Subjective questions

6. State the numerical coefficient of x in the following :

(i) $-7xy$ (ii) $21abxy^2$

7. Which of the following is a quadrinomial?

$x + y + yz + a + d$, $2x + 2y + 3x + m$, $x^2 + y^2 + ab + cd$, $m^2 + n^2 + a^3 + b^3 + y$

8. Identify binomial and trinomial expression among the following:

$a + b + c^2$, $x^2 + y^2 + x^3y^3$, $xy + 1$, $x^3y^3 + 2xy$

9. State the like terms and unlike terms in the following expressions:

$12x^3y^3 + 12x^2y - 6xy - 8x^3y^3$

10. What is the constant term of the following expression:

(i) $x^3 + y^3 + \frac{5}{8}$ (ii) $x^2 + y^2 + a^2 + \frac{9}{8}x + \frac{7}{4}$

SOLUTIONS DPP-02

1. **Option (2)**

The coefficient of x in $-2x$ is -2.

2. **Option (1)**

3x is a monomial.

3. **Option (3)**

3 terms are there in expression $2xy + y + z$.

4. **Option (4)**

The numerical factor of $7x^2y$ is 7.

5. **Option (2)**

$a + b + c + d$ is a quadrinomial.

6. (i) The numerical coefficient of $x = -7$

(ii) The numerical coefficient of $x = 21$

7. Since quadrinomial contains four terms

$\therefore$ Quadrinomial expressions are $2x + 2y + 3x + m$, $x^2 + y^2 + ab + cd$

8. Binomial and trinomial expressions contain two and three terms respectively.

$\therefore$ Binomial $\rightarrow y + 1$, $x^3y^3 + 2xy$

Trinomial $\rightarrow a + b + c^2$, $x^2 + y^2 + x^3y^3$

9. Like terms are $12x^3y^3$ and $-8x^3y^3$.

Unlike terms are $12x^2y$ and $-6xy$.

10. The constant term will be

(i) $\frac{5}{8}$ (ii) $\frac{7}{4}$

DAILY PRACTICE PROBLEM

Algebra DPP-03

Multiple choice questions

1. The rule, which gives the number of matchsticks required to make the matchstick pattern F, is

(1) 2n (2) 3n (3) 4n (4) 5n

2. The rule, which gives the number of matchsticks required to make the matchstick pattern V, is

(1) 2n (2) 3n (3) 4n (4) 5n

3. Number of matchsticks required to make a pattern of T is

(1) 2 (2) 4 (3) 5 (4) 3

Directions (Q.4 and Q.5)

Observe the following pattern :

3, 6, 9, 12, 15 _____ In this pattern, if one number is x, then answer the following question

4. What is the number after x?

(1) x (2) x + 3 (3) x + 4 (4) x + 6

5. What is the second number after x?

(1) x (2) x + 2 (3) x + 4 (4) x + 6

Subjective questions

6. Define the general rule for the pattern of house with matchsticks as shown:

Direction (Q.7 to Q.10): Observe the following pattern : 11, 16, 21, 26, 31, 36, ……

In this pattern, if one number is x, then answer the following questions.

7. What is the number after x?

8. What is the fourth number after x?

9. What is the twelfth number after x?

10. What is the number before x?

SOLUTIONS DPP-03

1. **Option (3)**

The rule, which gives the number of matchsticks required to make the matchstick pattern F, is 4n.

2. **Option (1)**

The rule, which gives the number of matchsticks required to make the matchstick pattern V, is 2n

3 **Option (1)**

Number of matchsticks required to make a pattern of T is 2.

4. **Option (2)**

Given pattern 3, 6, 9, 12, …….

Here the next number exceeds the previous number by 3.

So, the number after x is x + 3.

5. **Option (4)**

The second number after x is x + 6.

6. Here, one house is made up of 6 matchsticks i.e. 6 × 1.

Two houses are made up of 12 matchsticks i.e. 6 × 2.

Three houses are made up of 18 matchsticks i.e. 6 × 3.

$\therefore$ General rule = 6n

Where n represents the number of houses.

7. In the following pattern 11, 16, 21, 26, 21, 36, ……

The next term is increased by 5 from the previous term.

The number after x = x + 5

8. To get the fourth number after x, we have to increase x by 5 upto four times i.e.

x + 5 + 5 + 5 + 5 = x + 20.

9. The twelfth number after x

= x + 5 + 5 + 5+ 5+ 5 + 5 + 5 + 5 + 5+ 5+ 5 + 5

= x + 60

10. The number before x = x – 5.

DAILY PRACTICE PROBLEM

Algebra DPP-04

Multiple choice questions

1. Solve : $2x = 4$

(1) 1 (2) 2 (3) 3 (4) 4

2. Solve : $x - 15 = 8$

(1) 22 (2) 23 (3) 7 (4) 25

3. Solve $x + 4 = 5$

(1) 0 (2) 1 (3) 2 (4) 3

4. $\frac{2}{3}x + 2 = 3$ the value of x is

(1) $\frac{3}{2}$ (2) 2 (3) $\frac{5}{2}$ (4) None of these

5. Solve : $15 - (2x - 2) = 13$

(1) 1 (2) 2 (3) 3 (4) 4

Subjective questions

6. Solve : $\frac{9}{8}x = 72$

7. Solve : $3(x - 6) = 15$

8. Solve : $10 - (x - 6) = 9$

9. Solve : $2x + \frac{3}{4} = \frac{9}{4}$

10. Solve : $\frac{7}{8}x + 35 = 42$

SOLUTIONS DPP-04

1. Option (2)

$2x = 4$

$x = \frac{4}{2}$

$x = 2$

2. Option (2)

$x - 15 = 8$

$x = 8 + 15$

$x = 23$

3. Option (2)

$x + 4 = 5$

$x = 5 - 4$

$x = 1$

4. Option (1)

$\frac{2}{3}x + 2 = 3$

$\frac{2}{3}x = 3 - 2$

$\frac{2}{3}x = 1$

$x = \frac{1\times 3}{2}$

$x = \frac{3}{2}$

5. Option (2)

$15 - (2x - 2) = 13$

$15 - 2x + 2 = 13$

$17 - 2x = 13$

$2x = 17 - 13$

$2x = 4$

$x = \frac{4}{2}$

$x = 2$

6. $\frac{9}{8}x = 72$

$\Rightarrow x = \frac{72\times 8}{9}$

$= 8 \times 8$

$= 64$

7. $3(x - 6) = 15$

$\Rightarrow x - 6 = \frac{15}{3} = 5$

$\Rightarrow x = 6 + 5 = 11$

8. $10 - (x - 6) = 9$

$x - 6 = 10 - 9 = 1$

$x = 1 + 6 = 7$

9. $2x + \frac{3}{4} = \frac{9}{4}$

$2x = \frac{9}{4} - \frac{3}{4} = \frac{6}{4} = \frac{3}{2}$

$\Rightarrow x = \frac{3}{2 \times 2} = \frac{3}{4}$

10. $\frac{7}{8}x + 35 = 42$

$\frac{7}{8}x = 42 - 35 = 7$

$\Rightarrow x = \frac{7 \times 8}{7} = 8$

DAILY PRACTICE PROBLEM

Algebra DPP-05

Multiple choice questions

1. A number is multiplied by 6 and 12 is added to the product. The result is 84. What is the number?
(1) – 12 (2) 72 (3) 12 (4) – 72

2. The number which when added to its half gives 30, The number is _____ .
(1) 10 (2) 20 (3) 30 (4) 40

3. If the difference of a number and 9 is 13, then the number is _____ .
(1) 22 (2) 7 (3) 16 (4) 9

4. A natural number decreased by 6 is 15. Find the number.
(1) 9 (2) 8 (3) 21 (4) None of these

5. A number increased by 8 is equal to 48. The number is
(1) 40 (2) 45 (3) 48 (4) 50

Subjective questions

6. There are 27 boys in the class. This is three more than four times the number of girls. How many girls are in the class?

7. The sum of two numbers is 84 and one of them is 12 more than the other. What are the two numbers?

8. The sum of two consecutive numbers is 47. What are the numbers?

9. A number is decreased by 20 and the new number is divided by 5. If the resulting number is 100. Find the original number?

10. The number which when added to its three-fourth gives 77. Find the number?

SOLUTIONS DPP-05

1. Option (3)

Let the number be x.

ATQ, $6x + 12 = 84$

$6x = 84 - 12$

$6x = 72$

$x = \frac{72}{6}$

$x = 12$

2. Option (2)

Let the number be x.

$\frac{x}{1} + \frac{x}{2} = 30$

$\frac{2x+2}{2} = 30$

$3x = 30 \times 2$

$3x = 60$

$x = \frac{60}{3}$

$x = 20$

3. Option (1)

Let the number be x.

$x - 9 = 13$

$x = 13 + 9$

$x = 22$

4. Option (3)

Let the number be x.

$x - 6 = 15$

$x = 15 + 6$

$x = 21$

5. Option (1)

Let the number be x

$x + 8 = 48$

$x = 48 - 8$

$x = 40$

6. So, number of boys $= 3 + 4 \times x = 3 + 4x$

But given number of boys = 27

$\therefore 3 + 4x = 27$

$4x = 27 - 3 = 24$

$\Rightarrow x = 8$

7. Let the first number be x.

Then the second number = x + 12

Given, sum of second number = 84

A.T.Q.,

$x + x + 12 = 84$

$\Rightarrow 2x = 84 - 12 = 72$

$\Rightarrow x = \frac{72}{2} = 36$

and $x + 12 \Rightarrow 36 + 12 = 48$

$\therefore$ The numbers are 36 and 48.

8. Let n be the first number.

The second number = n + 1

A.T.Q.,

$\therefore n + n + 1 = 47$

$\Rightarrow 2n = 47 - 1 = 46$

$\Rightarrow n = \frac{46}{2} = 23$ and $n + 1 = 24$

The numbers are 23, 24

9. Let the original number be x.

A.T.Q.,

$\frac{x-20}{5} = 100$

$\Rightarrow x - 20 = 100 \times 5 = 500$

$\Rightarrow x = 500 + 20 = 520$

10. Let the number be x.

A.T.Q.,

$n + \frac{3}{4}n = 77$

$\Rightarrow \frac{4n+3n}{4} = 77$

$\Rightarrow \frac{7n}{4} = 77$

$\Rightarrow n = 4 \times 11 = 44$