D. True/False

ate whether the given statements are true (T) or false (F).

1. The equations $x + 2 = 0$ and $2x + 4 = 0$ have the same solution. T/F
2. The additive inverse of an integer x is $-x$. T/F
3. In the equation $6k - 2 = 7$, the variable is 6. T/F
4. The distance between Delhi and Mumbai is a variable. T/F
5. -1 is a solution of the equation $x + 1 = 0$. T/F
6. If m is a whole number, then $3m$ denotes a multiple of 3. T/F
7. If x is a negative integer, $-x$ is a positive integer. T/F
8. In an equation, the LHS is always equal to the RHS. T/F
9. $a = 3$ is a solution of the equation $2a - 1 = 7$. T/F
10. 'One third of a number added to itself gives 8', can be expressed as

    $x/3 + 8 = x$ T/F

. True False with Justification

true or false for each of the following. Justify your answer

1. $2x - 4 > 11$ is an equation. T/F

   _____

2. $x = 5$ is the solution of the equation $3x + 2 = 17$. T/F

   _____

3. The difference between the ages of two sisters Krishna and Yamini is a variable. T/F

   _____

4. x minutes are equal to $60x$ seconds. T/F

   _____

5. The number of lines that can be drawn through a point is a variable. T/F

   _____

I with the corresponding item of Column II.

Column I	Column II
(*i*) The variable in the equation $2p + 3 = 5$	(*a*) constant
(*ii*) Solution of the equation $2p + 3 = 5$	(*b*) –1
(*iii*) The number of corners of a quadrilateral is a	(*c*) =
(*iv*) The solution of the equation $x + 4 = 3$	(*d*) +1
(*v*) A sign used in an equation	(*e*) p
	(*f*) x

G. Multiple Choice Questions

In each of the following tick the correct option.

1. The expression obtained when x is multiplied by 5 and then subtracted from 3 is
   (A) $5x - 3$ (B) $5x + 3$ (C) $3 - 5x$ (D) $3x - 5$
2. Tina has $2p$ pencils in her box. She puts $3q$ more pencils in the box.
   The total number of pencils with her are
   (A) $3p + 2q$ (B) pq (C) $2p + 3q$ (D) $6pq$
3. The perimeter of the triangle with sides x, x and y is
   (A) $2x + y$ (B) $x + 2y$ (C) $x + y$ (D) $2x - y$
4. In algebra, letters may stand for
   (A) known quantities (B) unknown quantities
   (C) fixed numbers (D) none of these
5. Which of the following equations has $x = 3$ as a solution?
   (A) $x + 2 = 5$ (B) $x - 2 = 0$ (C) $2x + 1 = 0$ (D) $x + 3 = -6$
6. Which of the following represents $4 \times x$
   (A) $4x$ (B) $4\,x$ (C) $4 + x$ (D) $4 - x$
7. The equation $4x = 16$ is satisfied by which of the following value of x
   (A) 4 (B) 2 (C) 12 (D) –12
8. Which of the following equations does not have a solution in integers?
   (A) $x + 1 = 1$ (B) $x - 1 = 2$
   (C) $2x + 1 = 4$ (D) $1 - x = 5$
9. $x - 4 = -3$ has a solution
   (A) 6 (B) 1 (C) – 1 (D) – 2
10. I think of a number and on adding 12 to it, I get 27. The equation for this is
    (A) $x - 27 = 12$ (B) $x - 12 = 27$ (C) $x + 27 = 12$
    (D) $x + 12 = 27$

H. Activity

Make a list of 10 quantities which are variable [temperature of a place, annual rainfall etc.] and 10 quantities which are constant [number of sides of a triangle, measure of a right angle etc.]

Summative Assessment

A. Very Short Answer Type Questions (1 Mark)

(1 – 3) Give an expression for each of the following.

1. $-p$ is multiplied by 5

   _____

2. 5 added to $2x$

   _____

3. From 3 is subtracted $4x$

   _____

(4 – 5) Choose a letter x, y, z, p etc..., for the unknown (variable) and write the corresponding expressions:

4. The denominator of a fraction is 1 more than its numerator.

   _____

5. p is divided by 11 and the result is added to 10.

   _____

(6–8). Change the following statements into ordinary language.

6. Sara is x years old. Her father is $5x$ years old.

7. Our class has x students. Our school has $(30x + 20)$ students.

8. The maximum temperature on a day in Delhi was p °C. The minimum temperature was $(p - 10)$°C.

Translate statements 9–10 into an equation, using x as the variable:

9. One fifth of a number is 7 less than that number.

10. 5 added to twice a number gives 23.

Translate statements 11–13 into an equation, using the indicated variables.

11. The diameter (d) of a circle is twice its radius (r).

12. Amount (a) is equal to the sum of principal (p) and interest (i).

13. The perimeter (p) of an equilateral triangle is three times of its side (a).

B. Short Answer Type Questions (2 Marks)

–2). Write the rule that is expressed by this formula in words.

1. Perimeter of a triangle is found by using the formula $P = a + b + c$, where a, b and c are the sides of the triangle.

2. Perimeter of a rectangle is found by using the formula $P = 2(l + b)$, where l and b are respectively the length and breadth of the rectangle.

3. On my last birthday, I weighed 40kg. If I put on m kg of weight after a year, what is my present weight?

4. A class with p students has planned a picnic. ₹ 50 per student is collected, out of which ₹ 1800 is paid in advance for transport. How much money is left with them to spend on other items?

5. In a village, there are 8 water tanks to collect rain water. On a particular day, x litres of rain water is collected per tank. If 100 litres of water was already there in one of the tanks, what is the total amount of water in the tanks on that day?

6. Check if $x = 1$ is a solution of $3x - 1 = 2$.

7. Check if $x = 3$ is a solution of $3x + 4 = 10$.

C. Short Answer Type Questions (3 Marks)

Solve the following

1. $7x + 10 = 38$.

2. $2x - 3 = 17$.

3. $3x + 23 = 38$.

4. $\frac{3}{2}x + 5 = 11$.

5. $\frac{2}{3}x + 7 = 9$

D. Long Answer Type Questions (4 Marks)

1. Let Kanika's present age be x years. Find ages of her relatives in terms of x.
   (a) Her brother is 2 years younger.
   (b) Her father's age exceeds her age by 35 years.
   (c) Mother's age is 3 years less than that of her father.
   (d) Her grand father's age is 8 times of her age.

2. At present Sunita is half the age of her mother Geeta.
   (a) what will be their ages after 3 years?
   Mother:
   Sunita:
   (b) What were their ages 2 years ago?
   Mother:
   Sunita:

3. Length and breadth of a bulletin board are x cm and y cm, respectively.
   (a) What will be the length (in cm) of the aluminum strip required to frame the board, if 10 cm extra strip is required to fix it properly.
   (b) If x nails are used to repair one board, how many nails will be required to repair 11 such boards?
   (c) If 20 sq.cm. extra cloth per board is required to cover the edges, what will be the total area of the cloth required to cover 7 such boards?
   (d) What will be the expenditure for making 13 boards, if the carpenter charges ₹ x per board?

4. If m is a whole number less than 5, complete the table.

m					
$2m - 5$					

By inspection find the solution of the equation $2m - 5 = -1$

NCERT Textbook Exercises