# CLASS VI – MATHS – CHAPTER 11

# ALGEBRA

Name: Date:

**01**. The side of an equilateral triangle is shown by l. Express the perimeter of the equilateral triangle using l.
(a). 3l (b). 4l (c). 5l (d). 6l

**02**. Give expression for 25 added to r.
(a). r – 25 (b). r + 25 (c). r × 25 (d). r ÷ 25

**03**. Which out of the following are expressions with numbers only?
(a). 3x (b). (7×20) – 8z (c). 7×20–5×10–45 (d). 5 – 5n

**04**. Take Meena's present age to be y years, what will be her age 5 years from now?
(a). 5y (b). y – 5 (c). y/5 (d). y + 5

**05**. State which of the following are equations (with a variable).
(a). 17 = x + 7 (b). t – 7 > 5 (c). 7 × 3 – 19 = 8 (d). 2m < 30

**06**. The side of a regular hexagon is denoted by l. Express the perimeter of the hexagon using l.
(a). 6l (b). 5l (c). 4l (d). 3l

**07**. Give expression for 12 subtracted from z.
(a). z + 12 (b). z – 12 (c). z × 12 (d). z ÷ 12

**08**. Which out of the following are expressions with numbers only?
(a). y + 3 (b). 8z (c). 7×20 – 8 (d). 5 – 5n

**09**. Take Meena's present age to be y years, what will be her age 6 years from now?
(a). 6y (b). y – 6 (c). y/6 (d). y + 6

**10**. State which of the following are equations (with a variable).
(a). 5×4 – 8 = 2x (b). 7= 11×5 – 12×4 (c). z + 12 > 24 (d). m > 2

**11**. The side of a regular heptagon is denoted by l. Express the perimeter of the heptagon using l.
(a). 7l (b). 6l (c). 5l (d). 4l

**12**. Give expression for p multiplied by 16.
(a). p + 16 (b). p × 16 (c). p – 16 (d). p ÷ 16

**13**. Which out of the following are expressions with numbers only?
(a). y + 3 (b). (7 × 20) – 8z (c). 5(21 – 7)+ 7×2 (d). 5 – 5n

**14**. Take Meena's present age to be y years, what was her age 3 years back?
(a). 3y (b). y + 3 (c). y/3 (d). y – 3

**15**. State which of the following are equations (with a variable).
(a). 2n + 1 = 11 (b). 2x – 3 > 5 (c). t + 4 < 5 (d). m – 3 > 7

**16**. The side of an equilateral triangle is denoted by l. Express the perimeter of the triangle using l.
(a). 3l (b). 6l (c). 5l (d). 4l

**17**. Give expression for p divided by 15.
(a). p + 15 (b). p ÷ 15 (c). p – 15 (d). p × 15

**18**. Which out of the following are expressions with numbers only?

(a). 2y + 5 (b). (20 ÷ 5) – 3z (c). 3 (23 – 5) + 5 × 2 (d). 3x + 3

**19**. Take Meena's present age to be y years, what is his father's age if he is double of her age?

(a). y + 2 (b). y – 2 (c). y/2 (d). 2y

**20**. State which of the following are equations (with a variable).

(a). 3x + 2 = 11 (b). 2y – 4 > 5 (c). a + 4 < 5 (d). n – 3 > 7

**21**. If there are 40 mangoes in a box, how will you write the total number of mangoes in terms of the number of boxes? (Use x for the number of boxes.)

(a). 40x (b). 40 + x (c). 40 – x (d). 40/x

**22**. Give expression for '5 times y from which 3 is subtracted'.

(a). 5y – 3 (b). 5y + 3 (c). 5y/3 (d). 5y – 5

**23**. The teacher distributes 5 toffees per student. Can you tell how many toffees are needed, given the number of students? (Use y for the number of students.)

(a). y + 5 (b). y × 5 (c). y – 5 (d). y ÷ 5

**24**. Identify the operations (addition, subtraction, division, multiplication) in forming the expression. y + 17

(a). division (b). multiplication (c). addition (d). subtraction

**25**. Identify the operations (addition, subtraction, division, multiplication) in forming the expression. y/15

(a). subtraction (b). multiplication (c). addition (d). division

**Q1.** Fill in the blanks:

(a). The word '_____' means something that can vary, i.(e). change.

(b). The value of the variable in an equation which satisfies the equation is called a _____ to the equation.

(c). An _____ is a condition on a variable.

(d). The _____ of an equation is equal to its RHS only for a definite value of the variable in the equation.

(e). The value of a variable is not _____.

(f). An equation is expressed by saying that an expression with a variable is equal to a _____.

(g). The LHS of an equation is equal to its _____ only for a definite value of the variable in the equation.

(h). The _____ can take different values.

(i). An equation has _____ sides, LHS and RHS, between them is the equal (=) sign.

(j). The LHS of an equation is equal to its RHS only for a _____ of the variable in the equation.

**Q02**. Pick out the solution from the values given in the bracket next to each equation.

(a). p – 5 = 5 (0, 10, 5 – 5) (b). x + 4 = 2 (– 2, 0, 2, 4)

(c). 5m = 60 (10, 5, 12, 15) (d). n + 12 = 20 (12, 8, 20, 0)

(e). p – 5 = 5 (0, 10, 5 – 5) (f). q/2 = 7 (7, 2, 10, 14)

**Q03**. The length of a rectangular hall is 4 meters less than 3 times the breadth of the hall. What is the length, if the breadth is b meters?

**Q04**. Give expressions for the following cases.

(a). 7 added to p

(b). 7 subtracted from p

(c). 7 subtracted from – m

(d). – p multiplied by 5

(e). One more than twice the number.

(f). 20°C less than the present temperatur(e).

(g). The successor of an integer.

(h). Two consecutive odd integers.

(i). Two consecutive even integers.

(j). Multiple of 5.

(k). The denominator of a fraction is 1 more than its numerator.

(l). The height of Mount Everest is 20 times the height of Empire State building.

(m). z is multiplied by –3 and the result is subtracted from 13.

(n). p is divided by 11 and the result is added to 10.

(o). The perimeter of an equilateral triangle, if side of the triangle is m.

(p). Area of the rectangle with length k units and breadth n units.

(q). Omar helps his mother 1 hour more than his sister does.

**Q05**. A rectangular box has height h cm. Its length is 5 times the height and breadth is 10 cm less than the length. Express the length and the breadth of the box in terms of the height.

**Q06**. In questions below, change the statements, converting expressions into statements in ordinary language:

(a). A pencil costs Rs $p$ and a pen costs Rs $5p$.

(b). Kartik is $n$ years old. His father is $7n$ years old.

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

(d). Price of petrol was Rs $p$ per litre last month. Price of petrol now is Rs $(p – 5)$ per litre.

(e). Khader's monthly salary was Rs P in the year 2005. His salary in 2006 was Rs (P + 1000).

**Q07**. Translate each of the following statements into an equation, using $x$ as the variable:

(a). 13 subtracted from twice a number gives 3.

(b). One fifth of a number is 5 less than that number.

(c). Two-third of number is 12.

(d). 9 added to twice a number gives 13.

(e). 1 subtracted from one-third of a number gives 1.

**Q08**. Translate each of the following statements into an equation:

(a) The perimeter (P) of an equilateral triangle is three times of its side (O).

(b) The diameter (D) of a circle is twice its radius (R).

(c) The selling price (S) of an item is equal to the sum of the cost price (C) of an item and the profit (P) earned.

(d) Amount ($a$) is equal to the sum of principal (P) and interest ($i$).

**Q09**. What is the area of a square whose side is $m$ cm?

**Q10**. 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. Write the rule that is expressed by this formula in words.

**Q11**. Perimeter of a rectangle is found by using the formula $P = 2 ( l + w)$, where $l$ and $w$ are respectively the length and breadth of the rectangle. Write the rule that is expressed by this formula in words.

**Q12**. On my last birthday, I weighed 40kg. If I put on *m* kg of weight after a year, what is my present weight?

**Q13**. In question 41 to 45, state whether the statements are true or false.

(a). 0 is a solution of the equation $x + 1 = 0$

(b). The equations $x + 1 = 0$ and $2x + 2 = 0$ have the same solution.

(c). If *m* is a whole number, then $2m$ denotes a multiple of 2.

(d). The additive inverse of an integer *x* is $2x$.

(e). If *x* is a negative integer, $-x$ is a positive integer.

(f). $2x - 5 > 11$ is an equation.

(g). The distance between New Delhi and Bhopal is not a variable.

(h). *t* minutes are equal to $60t$ seconds.

(i). $x = 5$ is the solution of the equation $3x + 2 = 20$

(j). The difference between the ages of two sisters Leela and Yamini is a variable.

(k). The number of lines that can be drawn through a point is a variable.