

Chapter- 18**FUNDAMENTAL CONCEPTS****WORKSHEET**

1. Write the following using numbers, literals and signs of basic operations. State what each letter represents:

- (i) The diameter of a circle is twice its radius.
- (ii) The area of a rectangle is the product of its length and breadth.
- (iii) The selling price equals the sum of the cost price and the profit.
- (iv) The total amount equals the sum of the principal and the interest.
- (v) The perimeter of a rectangle is two times the sum of its length and breadth.
- (vi) The perimeter of a square is four times its side.

2. For each of the following algebraic expressions, write a suitable statement in words:

- (i) $3x + 8 = 15$
- (ii) $7 - y > x$
- (iii) $2y - x < 12$
- (iv) $5 \div z = 5$
- (v) $a + 2b > 18$
- (vi) $2x - 3y = 16$
- (vii) $3a - 4b > 14$
- (viii) $b + 7a < 21$
- (ix) $(16 + 2a) - x > 25$
- (x) $(3x + 12) - y < 3a$

3. Write the following using numbers, literals and signs of basic operations:

- (i) The sum of 6 and x .
- (ii) 3 more than a number y .
- (iii) One-third of a number x .
- (iv) One-half of the sum of number x and y .
- (v) Number y less than a number 7.
- (vi) 7 taken away from x .
- (vii) 2 less than the quotient of x and y .
- (viii) 4 times x taken away from one-third of y .
- (ix) Quotient of x by 3 is multiplied by y .

4. Separate the constants and the variables from each of the following:

56, $4y$, $-3x$, $5/4$, $(4/5)xy$, az , $7p$, 0 , $9x/y$, $3/4x$, $-xz/3y$

5. Group the like terms together:

- (i) $4x$, $-3y$, $-x$, $(2/3)x$, $(4/5)y$ and y .
- (ii) $(2/3)xy$, $-4yx$, $2yz$, $(-2/3)yz$, $zy/3$ and yx .
- (iii) $-ab^2$, b^2a^2 , $7b^2a$, $-3a^2b^2$ and $2ab^2$
- (iv) $5ax$, $-5by$, $by/7$, $7xa$ and $2ax/3$

6. State whether true or false:

- (i) 16 is a constant and y is a variable but $16y$ is variable
- (ii) $5x$ has two terms 5 and x
- (iii) The expression $5 + x$ has two terms 5 and x
- (iv) The expression $2x^2 + x$ is a trinomial
- (v) $ax^2 + bx + c$ is a trinomial
- (vi) $8 \times ab$ is a binomial
- (vii) $8 + ab$ is a binomial
- (viii) $x^3 - 5xy + 6x + 7$ is a polynomial

(ix) $x^3 - 5xy + 6x + 7$ is a multinomial

(x) The coefficient of x in $5x$ is $5x$

(xi) The coefficient of ab in $-ab$ is -1

(xii) The coefficient of y in $-3xy$ is -3

7. Mark the correct alternative in each of the following:

i). 5 more than twice a number x is written as

(a) $5 + x + 2$

(b) $2x + 5$

(c) $2x - 5$

(d) $5x + 2$

ii). The quotient of x by 2 is added to 5 is written as

(a) $x/2 + 5$

(b) $2/x+5$

(c) $(x+2)/ 5$

(d) $x/ (2+5)$

iii). The quotient of x by 3 is multiplied by y is written as

(a) $x/3y$

(b) $3x/y$

(c) $3y/x$

(d) $xy/3$

iv). 9 taken away from the sum of x and y is

(a) $x + y - 9$

(b) $9 - (x+y)$

(c) $x+y/ 9$

(d) $9/ x+y$

v). The quotient of x by y added to the product of x and y is written as

(a) $x/y + xy$

(b) $y/x + xy$

(c) $xy+x/ y$

(d) $xy+y/ x$

8. Write the degree of each of the following polynomials:

(i) $x + x^2$

(ii) $5x^2 - 7x + 2$

(iii) $x^3 - x^8 + x^{10}$

(iv) $1 - 100x^{20}$

(v) $4 + 4x - 4x^3$

(vi) $8x^2y - 3y^2 + x^2y^5$

(vii) $8z^3 - 8y^2z^3 + 7yz^5$

(viii) $4y^2 - 3x^3 + y^2x^7$

9. One pencil costs Rs 2 and one fountain pen costs Rs 15. What is the cost of x pencils and y fountain pens?

10. Think of a number. Multiply by 5. Add 6 to the result. Subtract y from this result. What is the result?

11. The number of rooms on the ground floor of a building is 12 less than the twice of the number of rooms on first floor. If the first floor has x rooms, how many rooms does the ground floor has?

12. Binny spend Rs a daily and saves Rs b per week. What is her income for two weeks?

13. Rahul scores 80 marks in English and x marks in Hindi. What is his total score in the two subjects?

14. Rohit covers x centimeters in one step. How much distance does he cover in y steps?

15. One apple weighs 75 grams and one orange weighs 40 grams. Determine the weight of x apples and y oranges.

