1. Write the following expressions separating the common factors
    a. 2x+8
    b. 3x+12
    c. 5x+5
    d. 3x-12
    e. 2x-10
    f. 3x+6y+9
    g. 2a-10b-8c

2. Write by separating the common factor
    a. ax+ay+a
    b. b+bx+by
    c. 5kx+ky-kz
    d. 9pq+qx+2qy
    e. 5x+5xy-xy
    f. a^2b-ab^2
    g. $mx^2+2m\ x^2y+5mxy^2$
    h. $ax^2+bx^2+2x^2$

3. Simplify
    a. $\frac{3}{8}+\frac{1}{2}-\frac{1}{3}$
    b. $\frac{1}{5}+\frac{2}{3}-\frac{1}{2}$
    c. $\frac{5}{6}-\frac{1}{3}+\frac{3}{8}$
    d. $\frac{3}{5}+\frac{7}{10}-\frac{5}{12}$
    e. $\frac{2}{5}+3\frac{1}{5}-1\frac{3}{10}$
    f. $3\frac{5}{7}-1\frac{6}{7}+\frac{1}{2}$
    g. $4\frac{1}{2}+\ 2\frac{2}{3}-5\frac{5}{6}$
    h. $5\frac{5}{6}-\ 2\frac{1}{3}-\frac{2}{3}$
    i. $4\frac{5}{7}-\ 2\frac{1}{2}+\frac{3}{14}$

4. In a mathematics test , the ratio between those who obtained more than 50 marks and those who obtained less than 50 marks is 3:4. If 21 students obtained more than 50 marks, find the total amount of students in the class

5. Cement motar for laying bricks in a house , cement and sand are mixed in the ratio 1:6. If 90 pans of sand are used, what is the amount of cement bags required for the mixture? (Take five pans of cement equal to one bag)

6. In a class, the ratio between boys and girls is 2:3. In a quiz program held between boys and the girls , the boys won. The teacher of the class distributed 108 toffees among the students in the class with three toffees for a boy and two toffees for a girl. Find the number of students in the class?

7. A father distributed a half of his money to his daughter and two sons in the ratio 2:3:3. If the daughter got Rs 200,000, how much money did he possess?

8. A building owned by a person has three storey's. He has rented the three stories to three separate institutions. The ratio of the rents per meter for the third, second and the first stories is 1:2:3 . The floor space of the first storey is 35 square metres, the second storey is 28 square metres and the third storey is 20 square metres. If he has rented the third storey at Rs 100 per square meter, find his income at the end of the month.

9. The ratio of carrot and leaks used in the preparation of fried rice is 2:1 and the ratio of leeks and cabbage is 2:3 . Find the ratio of carrot , leeks and cabbage used in preparation of fried rice?

10. The ratio of margarine and flour in a cake mixture is 1:1. The ratio of flour and sugar is 4:3 find the ratio of margarine , flour and sugar in the mixture. If the ratio between flour and eggs in the mixture is 10:9, find the ratio of eggs, flour and sugar?

11. The ratio of girls and boys in a school is 3:2. The ratio between girls and teachers is 25:1. Find the ratio of the girls ,boys and the teachers?

12. The ratio of sand and cement in a concrete mixture is 2:1 and the ratio between cement and metal is 2:7
    a. Find the ratio of cement, sand and metal
    b. If 6 bags of cement are needed for a cube of concrete mixture, find the number of sand and metal pans needed for it. (take five pans of cement equal to one bag)

13. Construct equation for the following cases
    a. When a number is divided by3, the result is5
    b. When a number is divided by 5 and 2 is added to it, the result is 4
    c. When a number is divided by 8 and 3 is subtracted from it, the result is zero
    d. When a number is multiplied by 2 and divided by 3, the result is 6
    e. Mr.Darmaratna travels a part of his journey by train at a speed of 40kmh^{-1} and the remaining part travelled by bus for one hour. The total time for the journey was three hours

     f.   An empty bottle weighs 50g and xg of liquid can be filled into it. The weight of four such bottles with liquid is 360g

     g.   There are 10boxes each of which is filled with x kg of potatoes . 2kg of potatoes were removed from each box. Then the weight of potatoes in the 10 boxes is 180kg

     h.   A father is twice as old his son. 20years ago, the father's age was six times the sons age.

14. What is 4% of Rs 225?

15. 5% of stock of 500 mangoes were rotten. Find the number of rotten mangoes?

16. 75% of the pupils in a class of 48 pupils are girls. Find the number of boys in this class?

17. The brokerage in the sale of a house is 3% . find the brokerage when a house is sold for Rs 50000/-

18. Mr.Mohamed spends 50% of his monthly income on his monthly needs. 20% is set aside for the welfare of his business. If his monthly income is Rs 30000
     a.   Find the amount he spent on his family needs
     b.   Fin the amount set aside for the welfare of his business

19. Bus fares were increased by 125. find the new fare of a bus of Rs 12?

20. During the festival season, all ready made garments will be sold at a discount of 10%. What is the amount paid for a saree priced at Rs 600?

21. 60% of the staff in school consist of lady teachers. If the number of lady teachers in the staff is 15, find the total number in the staff?

22. 2% of a stock of eggs were rotten. If the number of rotten eggs is 25, find the total number of eggs in the stock?

23. 30% of the persons who took part in a picnic were male elders. 40% were female elders. The rest were children . if 12 children took part in the picnic, find
     a.   The number of male elders
     b.   The number of female elders

24. Mark the following ranges on a number line
     a. $x \geq -2\frac{1}{4}$
     b. $x \geq -\frac{1}{4}$
     c. $x > 1.25$
     d. $x \geq -2.5$
     e. $x \leq -4\frac{2}{3}$
     f. $x \leq 0.25$
     g. $x \leq -1.75$

25. Find the
    a. Mode
    b. Median
    c. Mean
    d. Range of the following groups of data
        i. 3 5 7 4 3
        ii. 10 12 10 11 15 13
        iii. 25 30 17 33 18 25
        iv. 2.2 5.1 4.3 6.5 5.1 3.6 4.0
        v. 177 168 152 152 161

26. The marks obtained by 40 students in grade 8 for a test , out of 10 marks are as follows

5	10	8	4	8	10	9	6
9	10	6	9	4	5	4	5
7	10	10	9	8	4	5	6
5	7	8	6	5	4	5	5
6	6	8	7	5	4	6	4

    1. Tabulate the above data using tally marks
    2. Find the
        a. Mode
        b. Median
        c. Mean
        d. Range of the above data

27. Solve the following inequalities
    a. x-3 $\geq$ 2
    b. x-1 $\leq$ 2
    c. x+2 $\geq$ 0
    d. x+3 $\geq$ -2
    e. x-5 $\leq$ -3
    f. x-7 $\geq$ -5
    g. x+3 $\leq$ -8
    h. -3x+2 $\geq$ -6
    i. -7x $\leq$ 14
    j. -4x $\leq$ 12
    k. -6x $\leq$ 18

28. Write a set of outcomes in the experiments of tossing a coin
    a. What is the probability of obtaining a head
    b. What is the probability of obtaining a tail

29. In the experiment of tossing an unbiased die marked 1 to 6
    a. Find the probability of obtaining 3
    b. Find the probability of obtaining an even number
    c. Find the probability of obtaining a number greater than 2
    d. Find the probability of obtaining 3 or 4
    e. Find the probability of obtaining 8
    f. Find the probability of obtaining a whole number less than 7
    g. Find the probability of obtaining a triangular number

30. A bag containing 3 red balls , 2 white balls and 1 black ball which are equal in all respects except the colour. If a ball is taken out from the bag, find the probability that the ball taken will be
    a. A white
    b. A red
    c. A black
    d. A red, black or white
    e. Not a red
    f. A yellow