



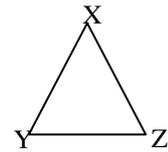
07. Simplify.  $\frac{1}{3} + \frac{1}{4} - \frac{1}{2}$

08. A commission of Rs. 96 000 is paid when selling a motor car worth Rs. 1 200 000. Calculate the percentage of commission.

09. Factorize.  $2x^2y + 6xy^2$

10. Simplify the expression.  $5(x + y) - (x - y)$

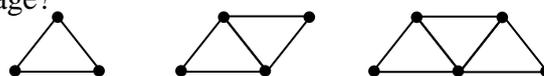
11. In the figure,  $XY = XZ$  and  $XZ = YZ$ . If  $XY = 8\text{cm}$ , find the perimeter of XYZ triangle.



12. 8% of profit is gained by selling a furniture for Rs. 81 000. Find the buying price of it.

13. Solve using axioms.  $7x - 2 = 12$ .

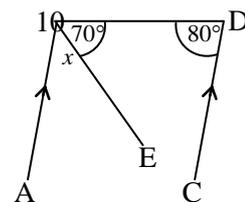
14. In the following pattern which was prepared using match sticks, how many match sticks are needed to prepare the 12<sup>th</sup> stage?



15. Simplify.  $3\frac{1}{4} \div 1\frac{1}{2}$

16. Find the value using the knowledge on factors.  $98^2 - 2^2$

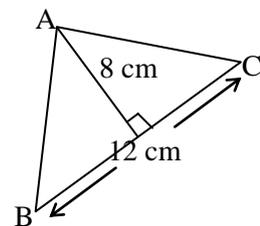
17. In the figure, if  $AB \parallel CD$ , find the value of  $x$ .



18. A cuboid shaped container with the area of the base  $200\text{cm}^2$  is filled with water. If the capacity of water in the container is  $1.8\text{ l}$ , find the height of the tank.

19.  $(x + 3)(x - 2) = x^2 + x - \square$  Fill in the blanks with suitable values.

20. Find the area of the ABC triangle.



## Part II

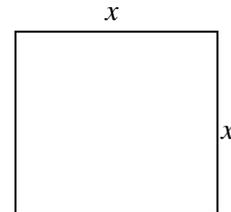
- Answer the first question and another four (04) questions only.
- First question carries 16 marks and the other questions carry 11 marks each.

01. (a) Answer the following questions using the knowledge of Binary numbers.
- i. With respect to the place value, explain what binary numbers are
  - ii. How many digits are used to write decimal numbers?
  - iii. How many digits are used to write binary numbers?

(b)

- i. Convert  $45_{\text{ten}}$ . Into a binary number.
- ii. Represent that binary number on an abacus.
- iii. Convert  $110101_{\text{two}}$  into a decimal number.
- iv. Find the value.  $1101_{\text{two}} + 111_{\text{two}}$
- v. Find the value.  $1101_{\text{two}} - 110_{\text{two}}$

02. (a) Figure shows a square shaped flower bed with the length of a side  $x$ .



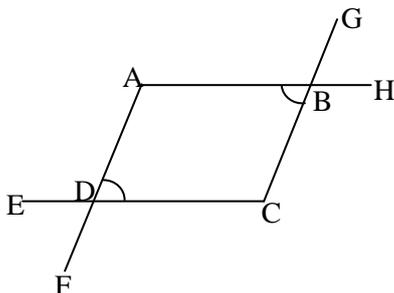
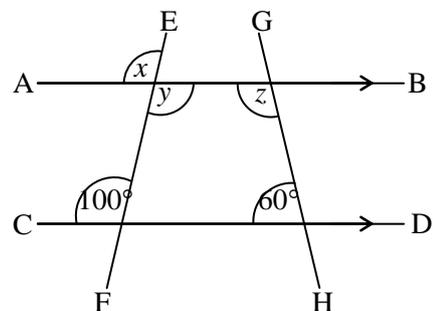
- i. A new flower bed is made by increasing the length by 3m and reducing the breadth by 2cm. Draw the sketch of the new flower bed and write its length and breadth in terms of  $x$ .
- ii. Write an expression for the area of the new flower bed and simplify it.

(b) Factorize the following expressions.

- i.  $x^2 - 9x + 20$
- ii.  $16m^2 - n^2$

03. According to the information given in the figure, answer the following questions.

- i. Name the pairs of parallel lines in the figure.
- ii. How many straight line segments are there?
- iii. Name three relationships between the angles formed by intersecting a pair of parallel lines from a transversal.
- iv. Find the magnitude of the angles  $x$ ,  $y$  and  $z$ .



- v. In the figure, if  $\hat{ABC} = \hat{ADC}$ , prove that  $\hat{EDF} = \hat{GBH}$

04. A man spends  $\frac{1}{3}$  of its salary for food and  $\frac{1}{4}$  of its salary for house rent.
- What fraction of the whole salary is spent for food and for house rent?
  - After spending for food and house rent,  $\frac{3}{5}$  of the remaining is spent for other expenses. What fraction of the whole salary is spent for other expenses?
  - After all the expenses mentioned above, if he deposits the remaining amount in a bank, what fraction of the salary is deposited?
  - If the amount he deposited in the bank is Rs. 6 000, how much is his monthly salary?
05. (a) Length, breadth and height of a rectangular shaped domestic water tank is 1.6m, 1m and 80cm respectively.
- Express the capacity of the tank in cubic centimeters.
  - Express the capacity of the tank in liters.
  - Daily water consumption of a person is 80l. if there are four members in a family, for how many days will the water in the tank be sufficient?
- (b) Certain milk collecting center collects  $0.5\text{m}^3$  of milk daily.
- Express that volume in liters.
  - If that quantity of milk is filled into bottles with the capacity 250ml, how many such bottles can be filled?
06. (a) Production cost of a wooden cupboard is Rs. 30 000. The manufacturer marked the price of it in order to obtain a 20% of profit. If the payment is done outright 2% of discount is given.
- What is the marked price of the cupboard?
  - What is the outright price of the cupboard?
  - Find the profit percentage gained by selling the cupboard for outright price.
- (b) A furniture seller ask for 5% of commission to sell 5 such cupboards for Rs.35000 each. If this deal is happened find the commission he gets.
07. During a practice session, an athlete runs 2 rounds around a playground on the first day, 5 rounds on the second day. Likewise he continues his practice by running three rounds more than the previous day.
- Write down the number of rounds he runs in first four days in order.
  - If the number of rounds he runs each day is written as a number pattern, what is the first term and the common different of it?
  - Find the general term ( $T_n$ ) of it.
  - Hence, find the number of rounds he runs on the 10<sup>th</sup> day.
  - On which day of the practice session will he run 20 rounds?

