



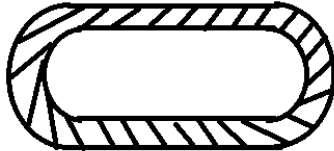
## Section B

11. The cost price of 20 articles is the same as the selling price of  $x$  articles. If the profit is 25%, then what is the value of  $x$ ?
  12. The length of a rectangle is twice its breadth. If the area of the rectangle is  $520 \text{ cm}^2$ . Find the length and breadth of the rectangle.
  13. Two adjacent sides of a rectangle are  $7x^2 - 5y^2$  and  $x^2 - 3xy$ . Find its area.
  14. A cab driver charges a fare of Rs.300 for a journey of 175 km. How much would it travel for Rs.320?
  15. If  $5A \times A = 399$ , find the value of  $A$ .
  16. In a small town, the population increased from 25,000 people in 1990 to 32,000 people in 2000. What is the percent increase in population?
  17. Find the factors of  $16l^2 + 24lm + 9m^2$ .
  18. A sum of money is to be distributed among A, B, C, D in the ratio 7:4:3. If C gets Rs. 1000 more than D, what is B's share?
  19. How many cubes of side length 6 cm can be obtained from a cube of side length 12 cm?
  20. Verify that  $(5x + 8)^2 - 160x = (5x - 8)^2$ .
21. Payal visits a departmental store and buys the following articles:
- a) 2 rain coats for Rs. 1000 each
  - b) One pair of sarees for Rs. 1200 each, rate of 8% discount
  - c) Food articles for Rs. 500 each, rate of 6% discount
  - d) Clothes for Rs. 200 each, rate of 2% discount
- Calculate the total amount she has to pay.
22. The dimensions of a room are 10 meters. There are 4 windows of  $1.3 \text{ m} \times 1.4 \text{ m}$  and 2 doors of  $2 \text{ m} \times 1.8 \text{ m}$ . Find the cost of white washing the walls and painting the doors and windows, if the rate of white washing is Rs.5 per  $\text{m}^2$  and rate of painting is Rs.8 per  $\text{m}^2$ .
  23. Add the following expressions:
    - a)  $9ax, +3by - cz, -2ay + ax + 3cz$
    - b)  $7a^2bc, -3abc^2, 3a^2bc, 2abc^2$
  24. Find the value of  $x$  in the following expressions:
    - a)  $1x3x6$  is divisible by 11.
    - b)  $756x$  is a multiple of 11.
  25. A trader allows successive discounts of 15% and 10% on the marked price of an article.
    - (a) If the marked price is Rs. 100, what would be the selling price?
    - (b) If the selling price is Rs. 7650 then find the marked price.

If the marked price is 25% above the cost price, find the cost price and the percentage profit or loss.

### Section D

26. A man invested Rs. 50000 for 3 years at the compound interest rate of 10% per annum. After 2 years the rate of interest was raised to 10%.
- Find the total interest earned by him.
  - Find the amount he received after 3 years.
  - Find the amount he received after 10 years if the compound interest rate is of 15%.
27. An athletic track 14 m wide consists of two straight sections 120 m long joining semi-circular ends whose inner radius is 35 m. calculate the area of the shaded region.



28. Expand the following, using suitable identities.

- $(x^2 + y^2)(x^2 - y^2)$
- $(a^2 + b^2)^2$
- $(x - y)^2 = (x + y)^2$
- $(2x - 5y)(2x - 5y)$

29. Factorize the following expressions:

- $a^4 - b^4$
- $p^4 - 81$
- $x^4 - (x - z)^4$
- $a^4 - 2a^2b^2 + b^4$

30. The following graph shows the temperature of a patient in a hospital, recorded every hour.

- What was the patient's temperature at 1 p.m.?
- When was the patient's temperature  $38.5^\circ\text{C}$ ?
- The patient's temperature was the same two times during the period given. What were these two times?
- What was the temperature at 1.30 pm? How did you arrive at your answer?
- During which periods did the patient's temperature show an upward trend?

