

PART IV

Answer any SEVEN only

7 x 5 = 35

26. In a survey of 5000 persons in a town, it was found that 45% of the persons know Language A, 25% know Language B, 10% know Language C, 5% know Languages A and B, 4% know Languages B and C, and 4% know Languages A and C. If 3% of the persons know all the three Languages, find the number of persons who knows only Language A. (Eg1.2)
27. On the set of natural numbers let R be the relation defined by aRb if $2a + 3b = 30$. Write down the relation by listing all the pairs. Check whether it is
 i) reflexive (ii) symmetric (iii) transitive (iv) equivalence (Ex1.2/5)
28. On the set of natural numbers let R be the relation defined by aRb if $a + b \leq 6$. Write down the relation by listing all the pairs. Check whether it is
 i) reflexive (ii) symmetric (iii) transitive (iv) equivalence (Ex1.2/7)
29. The owner of a small restaurant can prepare a particular meal at a cost of Rupees 100. He estimates that if the menu price of the meal is x rupees, then the number of customers who will order that meal at that price in an evening is given by the function $D(x) = 200 - x$. Express his day revenue, total cost and profit on this meal as functions of x . (Ex1.3/18)
30. Write the values of f at $-4, 1, -2, 7, 0$ if $f(x) = \begin{cases} -x + 4 & \text{if } -\infty < x \leq -3 \\ x + 4 & \text{if } -3 < x < -2 \\ x^2 - x & \text{if } -2 \leq x < 1 \\ x - x^2 & \text{if } 1 \leq x < 7 \\ 0 & \text{otherwise} \end{cases}$ (Ex1.3/2)
31. Write the values of f at $-3, 5, 2, -1, 0$ if $f(x) = \begin{cases} x^2 + x - 5 & \text{if } x \in (-\infty, 0) \\ x^2 + 3x - 2 & \text{if } x \in (0, 2) \\ x^2 & \text{if } x \in (2, \infty) \\ x^2 - 3 & \text{otherwise} \end{cases}$ (Ex1.3/3)
32. Let $A = \{1, 2, 3, 4\}$ and $B = \{a, b, c, d\}$. Give a function from $A \rightarrow B$ for each of the following:
 (i) neither one-to-one nor onto. (ii) not one-to-one but onto.
 (iii) one-to-one but not onto. (iv) one-to-one and onto. (Ex1.3/5)
33. If $f, g: \mathbb{R} \rightarrow \mathbb{R}$ are defined by $f(x) = |x| + x$ and $g(x) = |x| - x$, find $g \circ f$ and $f \circ g$. (Ex1.3/10)
34. From the curve $y = \sin x$, graph the functions i) $y = \sin(-x)$ ii) $y = \sin\left(\frac{\pi}{2} + x\right)$ which is $\cos x$ (Ex1.4/5(i),(iii))
35. From the curve $y = \sin x$, draw $y = \sin |x|$ (Hint: $\sin(-x) = -\sin x$) (Ex1.4/8)

+1 கணிதம்



ஐ] ன் யு ஃ



1. A | SVāVη YāÁVāL &RÁÍ È] ā | RāÔ – 12
2. AWr | &RÁÍ UāŞÁ È] ā | RāÔ – 5
3. AWr | &RÁÍ | RāÔ – 5
(UāÀo, H±WÅ – 2023, 2024, UāÀo 2025)

தொகுத்தவர்: பொ.புவனேஸ்வரா, M.Sc., B.Ed., M.Phil.,
உரிமையாளர்: கோ.மகாலட்சுமி, M.Sc., B.Ed.,



ஓ முருகா
பதிப்பகம்



+91 9663737998, +91 9384845512, +91 9788519850



50/31, T^āĀ II, &YXā¼RηTā + [Vη, LÄĀ - 639117



ommurugapublication@gmail.com

Rs. 65

“SUCCESS consists of a series of daily EFFORT”



OUR OTHER BOOKS

STATE BOARD:

- 10th Maths PP Question Bank (TM & EM)
- 10th Science PP Question Bank (TM & EM)
- 10th Social Science PP Question Bank (TM & EM)
- 11th Maths PP Question Bank (TM & EM)
- 11th Physics PP Question Bank (TM & EM)
- 11th Chemistry PP Question Bank (TM & EM)
- 12th Maths PP Question Bank (TM & EM)
- 12th Physics PP Question Bank (TM & EM)
- 12th Chemistry PP Question Bank (TM & EM)

STATE BOARD SOLUTION BOOK:

- 10th Maths PP Solution Book (TM & EM)
- 12th Maths PP Solution Book (EM)

CBSE:

- 10th Mathematics Solution Book
- 10th Mathematics Question Bank (More than 3000 Questions)

+91 9663737998, +91 9384845512, +91 9788519850

50/31, Bazaar II, Velayuthampalayam, Karur D.t - 639117

ommurugapublication@gmail.com

