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Sri Raghavendra Tuition Center

Test 1

10th Standard

Maths

Date : 03-10-24

Reg.No. : | | | | | | |

Exam Time : 01:00 Hrs

Total Marks : 25

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Centum Book Available

5 Marks

4 x 5 = 20

1) Let A = {x ∈ N| 1 < x < 4}, B = {x ∈ W| 0 ≤ x < 2) and C = {x ∈ N| x < 3} Then verify that

(i) A x (B U C) = (A x B) U (A x C)

(ii) A x (B ∩ C) = (A x B) ∩ (A x C)

2) If the function f: R⟶ R defined by

$$f(x) = \begin{cases} 2x+7, x < -2 \\ x^2 - 2, -2 \le x < 3 \\ 3x - 2, x \ge 3 \end{cases}$$

(i) f(4)

(ii) f(-2)

(iii) f(4) + 2f(1)

(iv) $\frac{f(1)-3f(4)}{f(-3)}$

3) Let A = {1,2,3,4} and B = { 2, 5, 8, 11,14} be two sets. Let f: A ⟶ B be a function given by f(x) = 3x − 1. Represent this function

(i) by arrow diagram

(ii) in a table form

(iii) as a set of ordered pairs

(iv) in a graphical form

4) If the function f is defined by

$$f(x) = \begin{cases} x+2 & \text{if } x > 1 \\ 2 & \text{if } -1 \le x \le 1 \\ x-1 & \text{if } -3 < x < -1 \end{cases}$$

find the values of

i) f(3)

ii) f(0)

iii) f(-1.5)

iv) f(2) + f(-2)

5) If f(x) = x^2, g(x) = 3x and h(x) = x - 2, Prove that (f o g) o h = f o (g o h).

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