

Class

8

Page No. 91

Subject

Maths - Revision - 2

Exam No. 08012024.

Unit-1 - Summary

- 1) Let $A = \{x \in \mathbb{N} / 1 < x < 4\}$, $B = \{x \in \mathbb{W} / 0 \leq x < 2\}$ and $C = \{x \in \mathbb{N} / x < 3\}$. verify that
- (i) $A \times (B \cup C) = (A \times B) \cup (A \times C)$
- (ii) $A \times (B \cap C) = (A \times B) \cap (A \times C)$
- 2) If $A = \{5, 6\}$, $B = \{4, 5, 6\}$, $C = \{5, 6, 7\}$ show that $A \times A = (B \times B) \cap (C \times C)$.
- 3) Given $A = \{1, 2, 3\}$, $B = \{2, 3, 5\}$, $C = \{3, 4\}$ and $D = \{1, 3, 5\}$, check if $(A \cap C) \times (B \cap D) = (A \times B) \cap (C \times D)$ is true?
- 4) Let $A = \{x \in \mathbb{W} / x < 2\}$, $B = \{x \in \mathbb{N} / 1 < x \leq 4\}$ and $C = \{3, 5\}$. verify that $(A \cup B) \times C = (A \times C) \cup (B \times C)$.
- 5) Let $A =$ The set of all natural numbers less than 8.
 $B =$ The set of all prime numbers less than 8,
 $C =$ set of even prime number. verify that
- (i) $(A \cap B) \times C = (A \times C) \cap (B \times C)$
- (ii) $A \times (B - C) = (A \times B) - (A \times C)$.
- 6) A company has 4 categories of employees given by Assistants (A), clerks (C), Managers (M) and an Executive Officer (E). The Company provide ₹ 10,000, ₹ 25,000, ₹ 50,000 and ₹ 1,00,000 as

Salaries to the people who work in the categories A, C, M, E respectively. If A_1, A_2, A_3, A_4 were assistants; C_1, C_2, C_3, C_4 were clerks; M_1, M_2, M_3 were managers and E_1, E_2 were Executive officers. and if the relation R is defined by xRy , where x is the salary given to person y. Express the relation R through an ordered pair and an arrow diagram.

7) Given the function $f: x \rightarrow x^2 - 5x + 6$, evaluate
 i) $f(-1)$ ii) $f(2a)$ iii) $f(2)$ iv) $f(x-1)$

8) A function f is defined by $f(x) = 3 - 2x$. Find x such that $f(x^2) = (f(x))^2$.

9) Let $A = \{1, 2, 3, 4\}$ and $B = \{2, 5, 8, 11, 14\}$ be two sets. Let $f: A \rightarrow B$ be a function given by $f(x) = 3x - 1$. Represent this function
 i) arrow diagram ii) in a table form

iii) as set of ordered pairs

iv) in a graphical form.

Class

TNPSC X

Page No. 03

Subject

Maths Revision-2

Exam No.

10) If the function $f: \mathbb{R} \rightarrow \mathbb{R}$ is defined by

$$f(x) = \begin{cases} 2x+1 & ; x < -2 \\ x^2-2 & ; -2 \leq x < 3 \\ 3x-2 & ; x \geq 3 \end{cases}$$

then find the values of (i) $f(4)$ (ii) $f(-2)$

(iii) $f(4) + 2f(1)$ (iv) $\frac{f(1) - 3f(4)}{f(-2)}$

11) If the function f is defined by

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

find the values of

(i) $f(3)$ (ii) $f(0)$ (iii) $f(-1.5)$ (iv) $f(2) + f(-2)$

12) A function $f: [-5, 9] \rightarrow \mathbb{R}$ is defined as follows:

$$f(x) = \begin{cases} 6x+1 & ; -5 \leq x < 2 \\ 5x^2-1 & ; 2 \leq x < 6 \\ 3x-4 & ; 6 \leq x \leq 9 \end{cases}$$

Find (i) $f(-3) + f(2)$ (ii) $f(7) - f(1)$

(iii) $2f(4) + f(8)$ (iv) $\frac{2f(-2) - f(6)}{f(4) + f(-2)}$

13) If $f(x) = 2x+3$, $g(x) = 1-2x$ and $h(x) = 3x$.

Prove that $f \circ (g \circ h) = (f \circ g) \circ h$

14) Find x if $gff(x) = fgg(x)$, given $f(x) = 3x+1$
and $g(x) = x+3$.

15) Let $f(x) = x^2 - 1$. Find (i) $f \circ f$ (ii) $f \circ f \circ f$.

16) $f(x) = x - 1$, $g(x) = 3x + 1$ and $h(x) = x^2$
show that $(f \circ g) \circ h = f \circ (g \circ h)$.

17) $f(x) = x^2$, $g(x) = 2x$ and $h(x) = x + 4$.
show that $(f \circ g) \circ h = f \circ (g \circ h)$.