Sri Raghavendra Tuition Center

UNIT - 1 - Exercise 1.4

10th Standard

Maths

Date : 14-07-24

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

Exam Time : 00:30 Hrs

Total Marks : 25

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Centum Book Available

I. Multiple Choice Question 11 x 1 = 11

1) Let A = {1, 2, 3, 4} and B = {4, 8, 9, 10}. A function f: A ⟶ B given by f = {(1, 4), (2, 8), (3, 9), (4,10)} is a

(a) Many-one function (b) Identity function (c) One-to-one function (d) Into function

2) If f(x) = $2x^2$ and g(x) = $\frac{1}{3x}$, then f o g is

(a) $\frac{3}{2x^2}$ (b) $\frac{2}{3x^2}$ (c) $\frac{2}{9x^2}$ (d) $\frac{1}{6x^2}$

3) f(x) = $(x + 1)^3 - (x - 1)^3$ represents a function which is

(a) linear (b) cubic (c) reciprocal (d) quadratic

4) If f: A ⟶ B is a bijective function and if n(B) = 7, then n(A) is equal to

(a) 7 (b) 49 (c) 1 (d) 14

5) If g = {(1,1), (2,3), (3,5), (4,7)} is a function given by g(x) = αx + β then the values of α and β are

(a) (-1,2) (b) (2,-1) (c) (-1,-2) (d) (1,2)

6) If f : R⟶R is defined by (x) = x^2 + 2, then the preimage 27 are _____

(a) 0.5 (b) 5, -5 (c) 5, 0 (d) $\sqrt{5}, -\sqrt{5}$

7) $(x - \frac{1}{x}) = x^2 + \frac{1}{x^2}$ then f(x) =

(a) x^2 + 2 (b) $x^2 + \frac{1}{x^2}$ (c) x^2- 2 (d) $x^2 - \frac{1}{x^2}$

8) If f(x) = x + 1 then f(f(f(y + 2))) is _____

(a) y + 5 (b) y + 6 (c) y + 7 (d) y + 9

9) Let f(x) = x^2 - x, then f(x- 1) - (x + 1) is _____

(a) 4x (b) 2-2x (c) 2-4x (d) 4x-2

10) If function f : N⟶N, f(x) = 2x then the function is, then the function is _____

(a) Not one - one and not onto (b) one-one and onto (c) Not one -one but not onto (d) one - one but not onto

11) If f(x) = 2 - 3x, then f o f(1 - x) = ?

(a) 5x+9 (b) 9x-5 (c) 5-9x (d) 5x-9

II. ANSWER ANY 2 QUESTION 2 x 2 = 4

12) Represent the function f = {(1,2),(2,2),(3,2),(4,3),(5,4)} through

(i) an arrow diagram

(ii) a table form

(iii) a graph

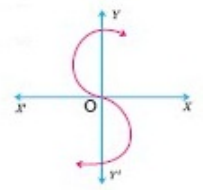
13) Let f be a function f : N ⟶ N be defined by f(x) = 3x + 2, x ∈ N

(i) Find the images of 1, 2, 3

(ii) Find the pre-images of 29, 53

(iii) Identify the type of function

14) Determine whether the graph given below represent functions. Give a reason for your answer concerning the graph.



III. ANSWER ALL QUESTION 2 x 5 = 10

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

16) Let f: A ⟶ B be a function defined by f(x) = $\frac{x}{2}$-1, where A = {2, 4 , 6, 10, 12}, B = {0, 1, 2, 4, 5, 9}, Represent f by

(i) set of ordered pairs

(ii) a table

(iii) an arrow diagram

(iv) a graph

ALL THE BEST

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