# Sri Raghavendra Tuition Center

**UNIT - 1 - Exercise 1.3**

**10th Standard**

**Maths**

Date : 14-07-24

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

Exam Time : 00:30 Hrs

Total Marks : 25

**T**

**EACHER NAME: P.DEEPAK M.Sc.,M.A.,B.Ed.,DCA.,TET-1.,TET-2.,**

**PHONE NUMBER : 9944249262**

**EMAIL: darthi99ktp@gmail.com**



**I. Multiple Choice Question.** 11 x 1 = 11

1) 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) $\frac{1}{6x^2}$

2) The range of the relation R = {(x, $x^2$) | x is a prime number less than 13} is

(a) {2,3,5,7} (b) {2,3,5,7,11} (c) {4,9,25,49,121} (d) {1,4,9,25,49,121}

3) Let n(A) = m and n(B) = n then the total number of non-empty relations that can be defined from A to B is

(a) $m^n$ (b) $n^m$ (c) $2^{mn}$-1 (d) $2^{mn}$

4) 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

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

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

6) Let f(x) = $\sqrt{1+x^2}$ then

(a) f(xy) = f(x).f(y) (b) f(xy) ≥ f(x).f(y) (c) f(xy) ≤ f(x).f(y) (d) None of these

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

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

8) If the set A has 'p' elements, B has 'q' elements, then the number of elements in A x B is _____

(a) p + q (b) p + q + 1 (c) pq (d) $p^2$

9) Given f(x) = $(-1)^x$ is a function from N to Z. Then the range of f is _____

(a) {1} (b) N (c) {1 ,-1} (d) Z

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

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

11) Let R be a relation from set A to a set B, then _____

(a) $\mathbf{R} = A \cup B$ (b) $A \cap B$ (c) $R \subseteq A \times B$ (d) $R \subseteq B \times A$

**II. Answer any 2 question.** 2 x 2 = 4

12) Let A = {1, 2, 3, 7} and B = {3, 0, –1, 7}, which of the following are relation from A to B ?

$R_1$ = {(2, 1), (7,1)}

13) Let X = {3, 4, 6, 8}. Determine whether the relation R = {(x, f(x)) | x ∈ X, f(x) = $x^2$ + 1}. is a function from X to N?

14) Let f(x) = 2x + 5. If x ≠ 0 then find $\frac{f(x+2)-f(2)}{x}$.

**III. ANSWER ALL QUESTION.** 2 x 5 = 10

15) A graph representing the function f (x) is given in Fig it is clear that f (9) = 2.

(i) Find the following values of the function

(a) f(0)

(b) f(7)

(c) f(2)

(d) f(10)

(ii) For what value of x is f (x) = 1?

(iii) Describe the following (i) Domain (ii) Range.

(iv) What is the image of 6 under f ?

Fig. 1.16

16) The data in the adjacent table depicts the length of a person forehand and her corresponding height. Based on this data, a student finds a relationship between the height (y) and the forehand length(x) as y = ax + b, where a, b are constants.

(i) Check if this relation is a function.

(ii) Find a and b.

(iii) Find the height of a woman whose forehand length is 40 cm.

(iv) Find the length of forehand of a woman if her height is 53.3 inches.

| **Length 'x' of forehand (in cm)** | **Height 'y' (in inches)** |
|---|---|
| 35 | 56 |
| 45 | 65 |
| 50 | 69.5 |
| 55 | 74 |

17) Given the function f:x $\longrightarrow$ $x^2$- 5x + 6, evaluate

i) f( -1)

ii) f (2a)

iii) f (2)

iv) f (x - 1)

**ALL THE BEST**

**********