



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

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Centum Book Available

I. Multiple Choice Question.

11 x 1 = 11

- 1) If $f(x) = 2x^2$ and $g(x) = \frac{1}{3x}$, then $f \circ g$ 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 $R = \{(x, x^2) \mid x \text{ is a prime number less than } 13\}$ 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 $f: A \rightarrow B$ 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) $f(xy) \geq f(x).f(y)$ (c) $f(xy) \leq f(x).f(y)$ (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 $A \times B$ 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 $f \circ f(1 - x) = ?$
 (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) $R = A \cup B$ (b) $A \cap B$ (c) $R \subseteq A \times B$ (d) $R \subseteq B \times A$

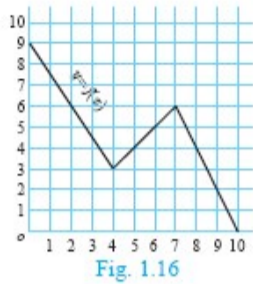
II. Answer any 2 question.

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 $R = \{(x, f(x)) \mid x \in X, f(x) = x^2 + 1\}$. is a function from X to N ?
- 14) Let $f(x) = 2x + 5$. If $x \neq 0$ then find $\frac{f(x+2)-f(2)}{x}$.

III. ANSWER ALL QUESTION.

- 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 ?



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

ALL THE BEST
