## Twelfth Grade - Functions

1) Let A =  $\{-2, -1, 0, 1, 2\}$  and if f : A ? Z be given by  $f(x) = x^2 - 2x - 3$ . Find the range of f.

- {0, -5, -3, -4}
- {5, 0, -3, -4}
- {0, 5, -3, 4}
- {0, 5, 3, -4}

2) Consider the function  $f(x) = x^2$ . Let  $A = \{-2, -1, 0, 1, 2\}$  under this rule  $f(x) = x^2$  if we obtain f(-2) = 5, f(-1) = 1, f(0) = 0, f(1) = 1 then what could be the functions domain.

- None of these
- {-2, -1, 0, 1, 2}
- {5, 1, 0, 1}
- {3,0,-2,2}

3) Let A =  $\{-2, -1, 0, 1, 2\}$  and if f: A? Z be given by  $f(x) = x^2 - 2x - 3$ . Find the pre image of 6

- No Pre image
- 7
- 3
- -6

4) Find the domain for which the function  $f(x) = 2x^2 - 1$  and g(x) = 1 - 3x are equal.

- (-2, -1/2)
- (-2, -1)
- (-2, 1/2)
- (2, 1/2)

5) Let f : R ? R be a function given by  $f(x) = x^2 + 1$ . Find f?<sup>1</sup> (10)

- ±4
- ±3
- ±5
- No Pre image

6) Let  $f = \{(1, 1), (2, 3), (0, -1), (-1, -3)\}$  be a function described by the formula f(x) = ax + b. Find a and b.

- None of these
- (-2, -1)
- (2, 0)
- (2, -1)

7) Find f (-1) if a function f : R ? R be defined by

$$f(x) = \begin{cases} 3x - 2, x < 0 \\ 1, x = 0 \\ 4x + 1, x > 0 \end{cases}$$

- 8
- 7
- -5
- 9

8) If  $f(x) = x^2 - 3x + 4$ , then find the value of f(2x + 1)

- $4x^2 2x + 2$
- -4x<sup>2</sup> 2x 2
- 4x
- 4x<sup>2</sup> 2x 2

9) If  $f(x) = (x - a)^2 (x - b)^2$ , find f(a + b)

- a<sup>2</sup>b<sup>2</sup>
- xab
- ab
- None of these

10) Find the domain for the function f(x) = ?(x - 2)

- (-2, ?]
- [2, -5)
- [2,?)
- (0, 0)
- 11) Find the domain for the function  $f(x) = ?(4 x^2)$ 
  - [-2, 2]
  - [2, -2)
  - [2, ?)
    (-2, 2)
  - (-2,?)

12) Find the range of the function f(x) = [(4 - x) / (x - 4)]

- 2
- Ø
- X
- -1

13) Find the range of f(x) = [(x-2)/(3-x)]

- R ? {1}
- R ? {0}
- R ? {-1}
- R ? {2}

14) How many terms are there in GP 3, 6, 12, ....., 384?

- 30
- 8
- 35
- 3

15) Find the 9th term of the GP 2, 4, 8, 16 .....

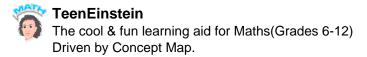
- 320
- 512
- 625
- 453

16) Mary buys a Chocolate box  $A(P) = 50P^2 - 15p + 30$ , each Chocolate in the Chocolate box worth p =\$3. Find the worth of the Chocolate box.

- 435
- 400
- 450
- 345

17) Kevin runs in a playground  $P(t) = 40t^2 - 30t + 3$  meters. The time taken by him, t = 2s. Then find the total distance covered by Kevin.

- 102
- 98
- 105
- 100



18) In Cadbury city average consumption of Chocolate by a child for respective years are given. Find the rate of change?

Year	1980	1990	2000	2010
Consumption	720	870	1020	1170

- 25
- 15
- -15
- 14

19) For the function  $f(x) = (x - 3)^2$ . Find the average rate of change between the points at x = 1, x = 3

- 3
- -2
- 6
- 4

20) Let f be in subset of  $Z \times Z$  defined by  $f = \{(ab, (a + b) : a, b ? Z\}$ . Then f is a

- Not a Function
- Function
- Complement Function
- Composite Function

21) Find the range of f, if f: R? R be defined as

$$\mathbf{f}(\mathbf{x}) = \begin{cases} 1 & \text{, if } \mathbf{x} \in \mathbf{Q} \\ -1 & \text{, if } \mathbf{x} \notin \mathbf{Q} \end{cases}$$

- [1, 1]
- [1, -1]
- [0, -1][0, 1]

22) Determine  $\{x : f(x) = 1\}$ , if f : R ? R be such that f (x) = 2?

- 1
- X
- 0
- 4

23) The function f and g is defined as

$$f(x) = \begin{cases} x^2, 0 \le x \le 3 \\ 3x, 3 \le x \le 10 \end{cases}$$
$$g(x) = \begin{cases} x^2, 0 \le x \le 2 \\ 3x, 2 \le x \le 10 \end{cases}$$

- f is a function
- f is a function but g is not a function is a function
- g is a function
- f and g is a function

24) If  $f(x) = x^2$ , find [(f(1.1) - f(1)) / (1.1) - 1]

- 4.1
- 3.1
- 5.1
- 2.1

25) Find the domain of the function  $f(x) = ?(4 - x) + (1 / ?(x^2 - 1))$ 

- (?, 1)?(1, 4]
- (-?, -1) ? (1, 4]

- (?, -1) ? (1, 4]
- (-?, -1) ? (-1, -4]

26) Find the domain of the function  $f(x) = (1/2 - \sin 3x)$ 

- Even numbers
- Odd numbers
- R
- N

27) Find f (-?(3))

$$f(x) = \begin{cases} x^2, x < 0 \\ x, 0 \le x < 1 \\ 1/x, x \ge 1 \end{cases}$$

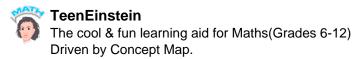
- 3
- 4
- -4
- -3

28) Find the range of the function  $f(x) = 3/(2 - x^2)$ 

- (-?, 0)?[-1,-?)
- (-?, 0) ? [-1, ?)
- (?,0)?[1,?)
- (-?, 0) ? [1, ?)

29) Find the range of the function  $f(x) = 3/(2 - x^2)$ 

• (-?, 0)?[-3/2,-?)



- (?,0)?[-3/2,?)
- (?, 0) ? [3/2, ?)
- (-?, 0)?[3/2,?)

30) Find the general term of the progression 1/4, -1/2, 1, -2

- (-1)??<sup>3</sup> (2)??<sup>3</sup>
- (-1)??? (2)??<sup>3</sup>
- (-1)??<sup>3</sup> (-2)??<sup>3</sup>
- (-1)? (2)??<sup>3</sup>