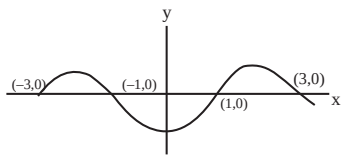
FUNCTIONS

1. If f(A) = B then f : A→B is a/an _____ function (June 2009)
2. Let f : R→R be defined by f(x) = 3x+2, then the element of the domain of 'f 'which has 11 as image is _____
3. Range of a constant function is a _____ set.
4. If f : N→N is defined by f(x) = x+1, then the range of 'f ' is _____ (June 2009)
5. If f(x) = x∀x, then f is a/an _____ function (June 2009), (March 2008)
6. If f(x) = x^2 – x + 6 then f(4) = _____ (March 2008)
7. f(x) = x^2 + 4x – 12,what are the zeros of f(x) _____ (March 2008)
8. f(x) = x^3, g(x) = x^2–2 for x∈R then (gof)(x) = _____ (March 2008)
9. f(x) = x^2 + 2x – K and if f(2) = 8 then k =_____ (June 2007)
10. f : A→B is an objective and if n(A) = 4 then n (B) = _____ (June 2007)
11. If f(x) = x then the function f is _____ (June 2010)
12. A function is one - one and on-to then the function is _____ (June 2010)
13. If f = {(1,2),(2,3),(3,1)} then $f^{-1}(2)$ = _____
14. If f is Identity function f(5) = _____
15. If $f(x_1) = f(x_2) \Leftrightarrow x_1 = x_2$ then f is _____ function.
16. f : A→B and f (x) = c∀x∈A then f is _____
17. If f : A→B such that f (A) ⊂ B then f is _____
18. f = {(1,2), (2,3), (3,4)}, g = {(2,5), (3,6), (4,7)} then fog = _____
19. The domain of the function $\frac{1}{\sqrt{x^2-16}}$ is _____
20. f : A→B and f(x) = 2x +5 then the inverse of f is _____
21. If f(x) = $\sqrt{x}$ then $[fo(fof)](x) =$ _____
22. The range of constant function is _____
23. If f = {(1,2), (2,3), (3,4), (4,1)} then fof = _____
24. If f(x) = ax + b and f (2) = 6 then the relation between a and b is _____
25. f(x) = x + 2 and g (x) = 2x–1 then
    f (1) -g(-1) = _____
26. If a function is both one-one and on-to then the function is _____
27. f : A→B is a function then B is called _____
28. f : A→B such that f (A) = B then f is _____
29. f : A→B and B ⊆ R then f is _____
30. A constant function f : N→N is defined by
    f (x) = 5 then f (15) = _____
31. $f(x) = \frac{x-1}{x-1} (x \neq 1)$ then $f(x) + f\left(\frac{1}{x}\right)$ _____
32. The range of the function f = {(a,x), (b,y), (c,z)} is _____
33. The inverse of a function will be a function again if it is _____
34. If f : x → $\log_2$ x then f (16) = _____
35. The set builder form of
    R = {(1,3), (2,4), (3,5)} is _____
36. f^{-1} (x) = x–3, g^{-1} (x) = x–1 then $(fog)^{-1}$ = _____
37. What is the zeros of the adjacent function is _____



38. Number of elements in {3,5,7,9} × {4,6,8} is _____
39. A function f : A→B is said to be _____ function, if for all y ∈ B there exists x ∈ A such that f (x) = y.
40. If f(x) = 2–x, g(x) = 3x + 2 then (fog) (2) = _____
41. f(x) = x+1, then 3f(2)–2f(3) = _____
42. f = {(x,1004)/x ∈ N} then f is _____
43. The condition to define gof is _____
44. Let f : R→R, f(x) = 6x+5 then $f^{-1}(x)$ = ____
45. If f(x) = 2x – 3 the value of $\frac{f(x+h)-f(x)}{h}$ is _____

KEY

1. Onto	2. 3	3. Singleton set	4. {2,3,4,5-----}	5. Identity	6. 18	7. -6 (or) 2	8. (x^6-2)
9. 0	10. 4	11. Identity function		12. bijective	13. 1	14. 5	15. one-one
16. constant function		17. Into function	18. does not find	19. x > 4			

20. $\frac{x-5}{2}$ 21. $\sqrt[8]{x}$ or $x^{1/8}$ 22. Singleton set 23. {(1,3) (2,4)(3,1) (4,2)} 24. 2a+b = 6 25. 6 26. bijective

27. co-domain 28. onto function 29. real valued 30. 5 31. 0 32. {x,y,z} 33. bijective 34. 4

35. {(x,y)/ y=x+2, x ∈ N, x ≤ 3} 36. (x-4) 37. {-3,-1,1,3} 38. 12 39. Onto 40. -6

41. 1 42. Constant function 43. The range of f is equal to the domain of g.

44. $\frac{x-5}{6}$ 45. 2

FUNCTIONS:
Important Questions

4 Marks

1. Let f : R → R be defined by f (x) = 2x + 3. find $f^{-1}(4)$,

$\left\{f^{-1}(x): 2 \le x \le 3\right\}$, $\left\{f^{-1}(x): x \le 5\right\}$

2. Let f,g,h be functions , f(x) = x+2, g (x) = 3x-1 and h(x)=2x show that ho(gof)=(hog)of ?
3. If a function f : R → R is defined by f(x) = 3x-5, then find a formula that defines the inverse function f^{-1}?
4. Let f be given by f(x) = x+2 and f has the domain {x : 2 ≤ x ≤ 5} find $f^{-1}$and its domain and Range?

2 Marks

1. Let f : R -{2} → R be defined by

$f(x) = \frac{2x+1}{x-2}$ show that $f\left(\frac{2x+1}{x-2}\right) = x.$?

2. Define one-one function show that f(x) = 3x – 2; x ∈ N is one -to-one.?
3. If f(x) = x^2 + 2x + 3, x ∈ R find the volue of

$\frac{f(x+h)-f(x)}{h}$ when h ≠ 0.?

4. f : R → R be defined by f(x) = 6x + 5, find f^{-1} (x).?
5. f(x) = x + 2, g(x) = x^2 – 3 find

1) (gof) (-2) 2) (fog) (-2).?

1 Mark

1. Define on-to function?
2. Let f : A → B and let f have an inverse function f^{-1} : B → A. state the properties of f for which its inverse exists.
3. Define equal functions?
4. Let *f* = {(1,2), (2,3), (3,4)} and g = {(2, 5), (3, 6), (4, 7)} find gof?
5. Define a bijection?
6. Let f : R-{1} → R be defined by f(x) = 1 + 2x, g(x) = 3 – 2x, find (fog) (3)?