Assignment

Q.No.1 Find the natural domain for the following functions

a. $f(z) = -2z^2 + 12z + 5$

b. $f(t) = 2 - \sqrt{z^2+1}$

Q.No.2 Let a quadratic function f(x)=x^2+3x-4. This function is defined for all real values of x. Find

a. The vertex of f(x)
b. The minimum value of f(x)
c. The equation of the line of symmetry
d. The range of f(x)
e. The values of x where f(x)=0
f. The domain of f(x)

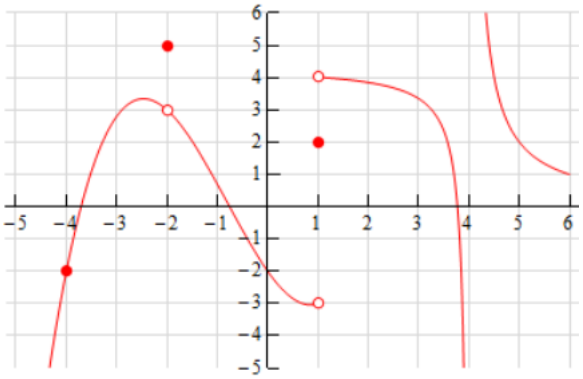
Q.No.3 Let f(x)=2x^2+1 and g(x) = 2x-1 are functions. Find the following composition functions.

a. fog(x)
b. gof(x)
c. Consider the domain of f as D={1, 2, 3, 4}, and draw the ray diagram of gof.

Q.No.4 Find inverse of the following functions

a. f(x) = 10/(2x-5), this function is not defined for x =5/2
b. g(x) = 5/(x+9), this function is not defined for x=-9

Q. No.5 The graph of a function f(x) is given below



(a) Compute each of the following limits

(i) f(1)

(ii) $\lim_{x \to 1^-} f(x)$

(iii) $\lim_{x \to 1^+} f(x)$

(iv) $\lim_{x \to 1} f(x)$

(b) Discuss the continuity of the function at x = 1.

Q. No.6 Evaluate the following limits by using algebraic manipulation

(a) $\lim_{x \to 4} \frac{16-x^2}{4-x}$

(b) $\lim_{x \to 3} \frac{x^2-5x+6}{x-3}$

(c) $\lim_{x \to 0} \frac{\sqrt{x^2+4}-2}{x^2}$