1. Determine analytically if the following functions are even, odd or neither.

a. f(x) = $x^{3}$+ $x^{2}$+ x + 1 b. f(x) = $\sqrt{√ 1 - x^{2}}$

Answers: a. neither b. even

2. Use the graph of y = f(x) given below to answer the questions.

# a. Find the domain of f.

# b. Find the range of f.

# c. Determine f(2).

# d. Solve f(x) = −5.

Answer: a. [−4, 4] b. [−5, 5) c. f(2)=3 d. x= -2

3. Sketch the graph of the given function. State the domain of the function, identify any intercepts and test for symmetry

a. f(x) = $x^{2}$ + 1 b. f(x) = x(x − 1)(x + 2)

Answer: a. Domain: (−∞, ∞) x-intercept: None y-intercept: (0, 1) Even

 b. Domain: (−∞, ∞) x-intercepts: (−2, 0), (0, 0), (1, 0)

 y-intercept: (0, 0) No symmetry

4. Find both the point-slope form and the slope-intercept form of the line with the given slope which passes through the given point.

a. m = −1, P(−7, −1) b. m = 678, P(−1, −12)

Answer: a. y + 1 = −(x + 7) y = −x – 8

 b. y + 12 = 678(x + 1) y = 678x + 666

5. You are given a line and a point which is not on that line. Find the line perpendicular to the given line which passes through the given point.

a. y = −6x + 5, P(3, 2) b. y = 6, P(3, −2)

Answer: a. y = 1/ 6 x + 3/2 b. x = 3

6.Solve the equation :

a. 2|5x + 1| − 3 = 0 b. |2x − 1| = x + 1

Answer: a. x = − 1 /2 or x = 1/ 10 b. x = 0 or x = 2

7. Determine whether or not the equation represents y as a function of x.

a. $x^{2}$− $y^{2}$ = 1 b. . y = $x^{2}$+ 4

Answer : a. Not a function b. Function

8. Use the pair of functions f and g to find the following values if they exist.

(f + g)(2) (f − g)(−1) (g − f)(1) (fg) (1/ 2) (f/ g) (0) ( g/ f) (−2)

 a.f(x) = 3x + 1 and g(x) = 4 – x b. f(x) = √ x$\sqrt{x+3}$ and g(x) = 2x – 1

 c.f(x) =$x^{2}$ − x and g(x) = 12 − $x^{2}$ d. f(x) = $x^{2}$ + 1 and g(x) = $\frac{1}{ x^{2} + 1}$

9. Let f be the function defined by

 f = {(−3, 4),(−2, 2),(−1, 0),(0, 1),(1, 3),(2, 4),(3, −1)}

and let g be the function defined by

g = {(−3, −2),(−2, 0),(−1, −4),(0, 0),(1, −3),(2, 1),(3, 2)} .

Compute the indicated value if it exists:

a. (f + g)(−3) b. (f − g)(2) c. (fg)(−1) d. (g + f)(1)

Answer: a.(f + g)(−3) = 2 b. (f − g)(2) = 3 c. (fg)(−1) = 0 d. (g + f)(1) = 0