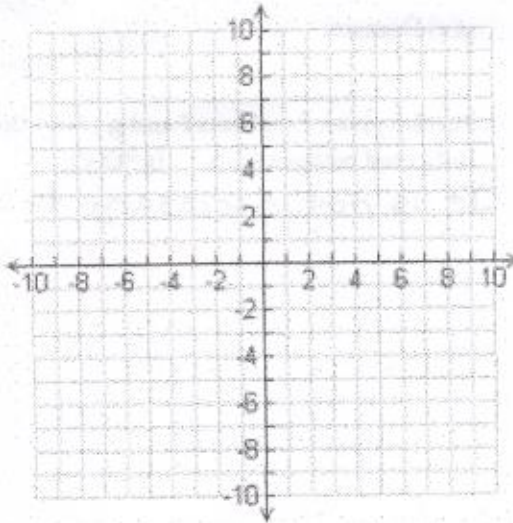


Show ALL work. You must show sufficient work to receive full credit.

Graph the function.

$$1) f(x) = \begin{cases} 2x + 1, & \text{if } x < -2 \\ 5, & \text{if } -2 \leq x < 5 \\ 6 - x, & \text{if } x \geq 5 \end{cases}$$



Determine if the function is even, odd, or neither. You must show work to support your answer.

$$3) g(x) = 3x^4 - 5x - 8$$

4) For the graph shown, find the requested information.

Identify the intervals for which the function is:

Increasing:

Decreasing:

Constant:

No work = No credit.

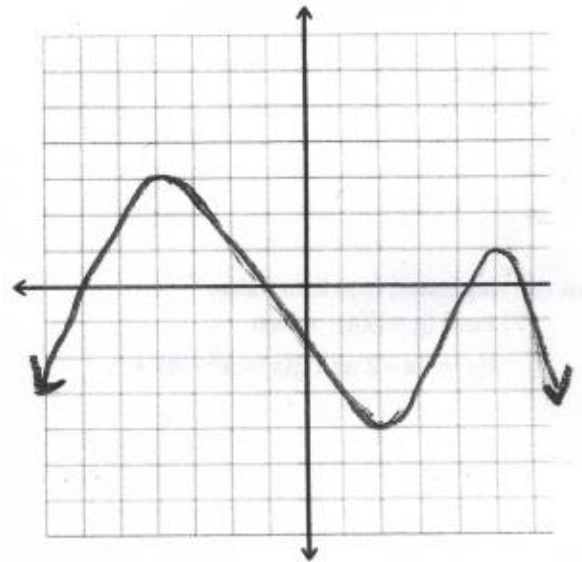
2) Use  $f(x)$  from problem 1 to find the requested values:

a)  $f(-3)$

b)  $f(-2)$

c)  $f(3)$

d)  $f(5)$



Domain:

Range:

Inc:

Relative Max:

Dec:

Relative Min:

For the pair of functions, find the indicated sum, difference, product, or quotient. Simplify if possible.

5)  $f(x) = 6 - 3x$ ,  $g(x) = -8x^2 + 3$

Find  $(f + g)(x)$ .

6)  $f(x) = 2x^2 - 5x$ ,  $g(x) = x^2 - 2x - 15$

Find  $\left(\frac{f}{g}\right)(x)$ . State the domain.

Find the requested function value.

7) Find  $(g \circ f)(4)$  when

$f(x) = 4x - 2$  and  $g(x) = x^2 - 8x + 5$ .

8)  $f(x) = \sqrt{x+5}$ ,  $g(x) = \frac{1}{x}$

Use interval notation to state the domain of each function:

$f(x)$  Domain:

$g(x)$  Domain:

For the given functions  $f$  and  $g$ , find the indicated composition.  $(g \circ f)(x)$

It is not necessary to simplify.

**Bonus:** Find the domain for #10.

9) LPD:

Additional restrictions:

D of  $(g \circ f)(x)$