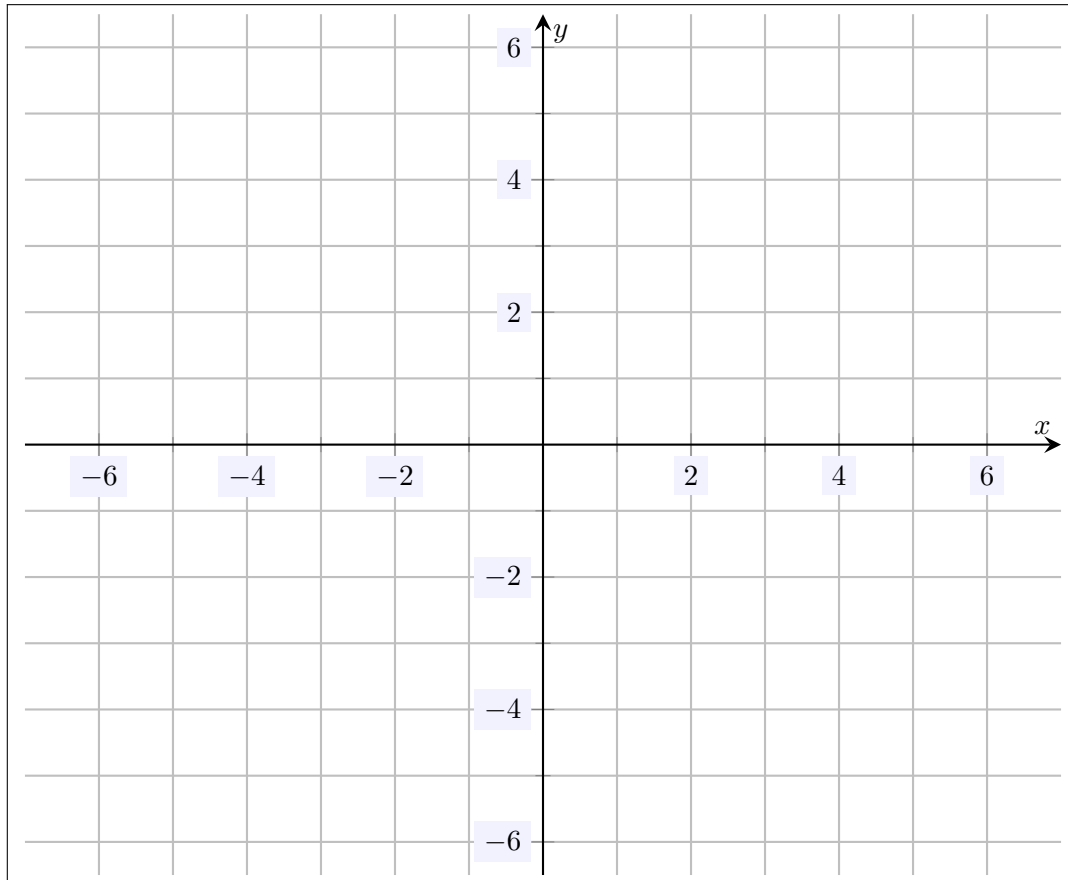


Name: \_\_\_\_\_  
MATH 101  
Fall 2021  
HW 6: Due 10/08

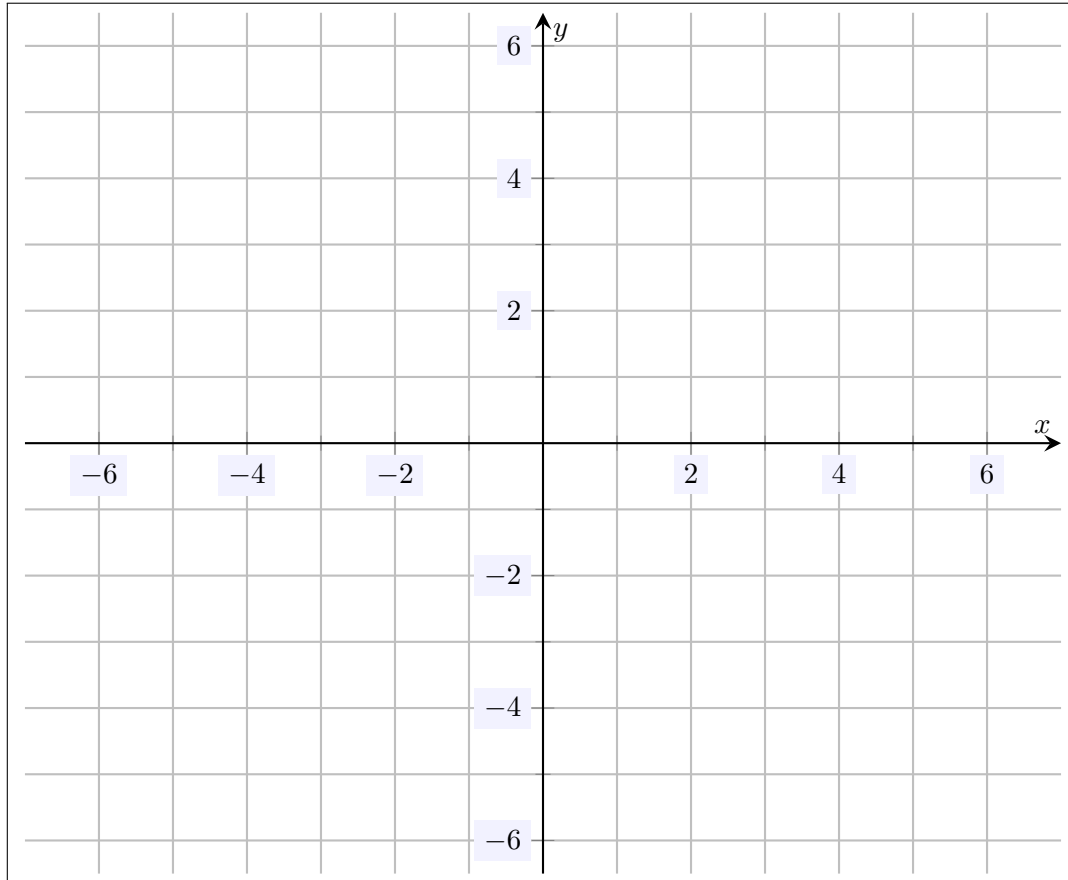
*"I'm fine. It's just that life is pointless  
and nothing matters and I'm always  
tired."*

*—Andy Dwyer, Parks and Recreation*

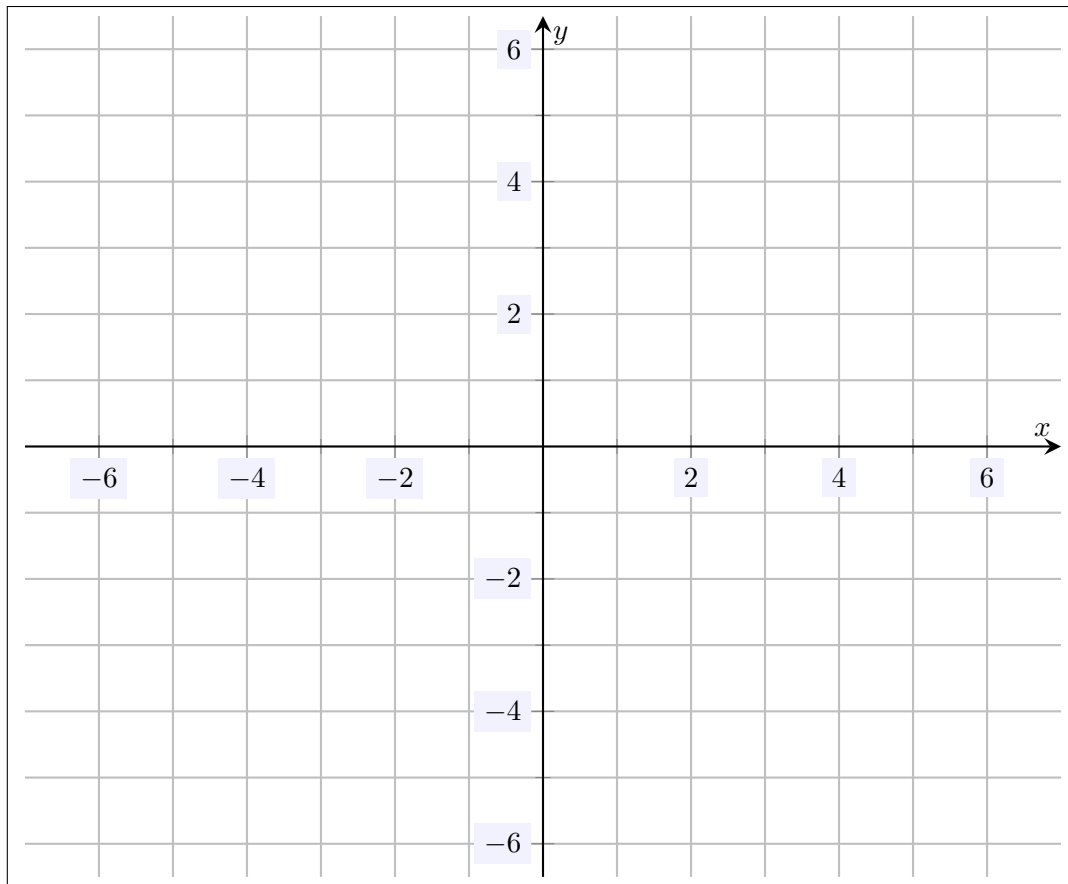
**Problem 1.** (10pt) Plot the function  $f(x) := 4 - 3x$ , being as accurate as possible.



**Problem 2.** (10pt) Plot the function  $f(x) := x^2 + 4x - 1$ , being as accurate as possible.



**Problem 3.** (10pt) Plot the function  $f(x) := \frac{x+1}{x^2+1}$ , being as accurate as possible.



**Problem 4.** (10pt) Let  $f(x) := 5x - 3$ .

(a) Find  $f(1)$ .

(b) What value(s) for  $x$  make the output of  $f(x)$  twice the output from (a)?

(c) Is  $(1, 2)$  on the graph of  $f(x)$ ? Explain.

(d) Is  $(3, 5)$  on the graph of  $f(x)$ ? Explain.

**Problem 5.** (10pt) Define the following functions:

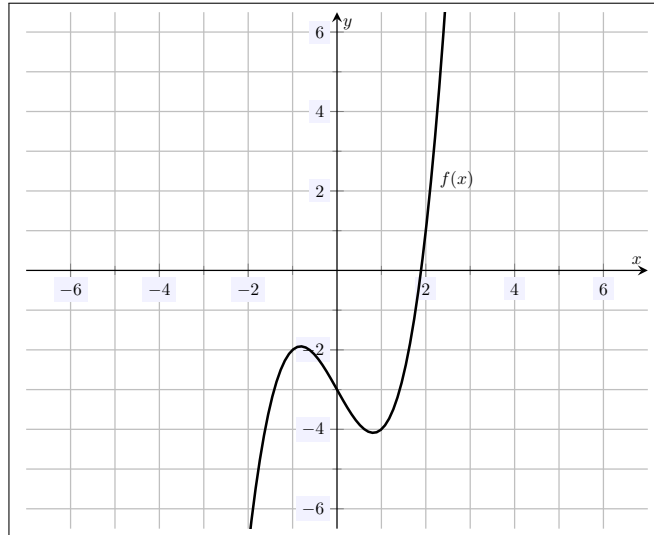
$$f(x) := x^3 - x$$

$$g(x) := x^2 - 2x + 3$$

$$h(x) := x^4 + x^2$$

Determine if the functions  $f(x)$ ,  $g(x)$  and  $h(x)$  are even functions, odd functions, or neither. Be sure to justify your answer.

**Problem 6.** (10pt) Consider the function  $f(x)$  plotted below.



- (a) What is  $f(1)$ ?
- (b) Is the point  $(2, 1)$  on the graph of  $f(x)$ ? Explain.
- (c) Is the point  $(-2, -2)$  on the graph of  $f(x)$ ? Explain.
- (d) Is the function  $f(x)$  even, odd, or neither. Explain.