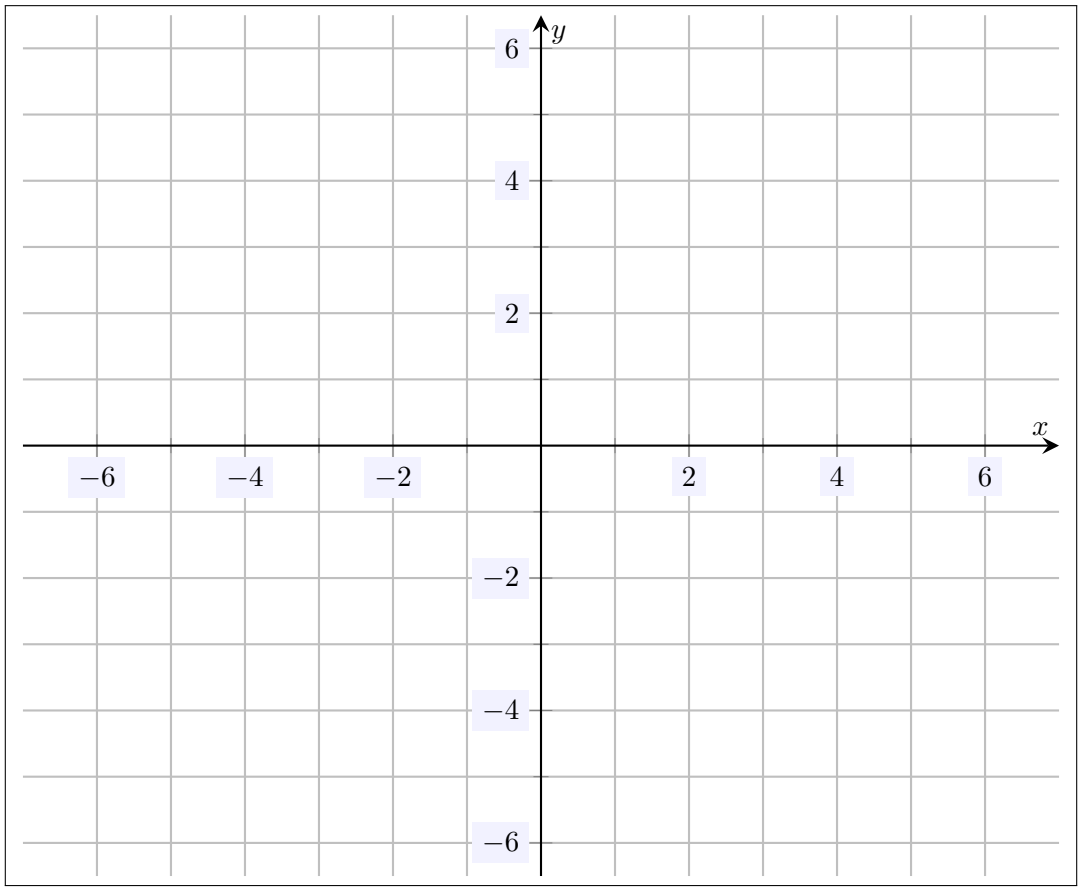
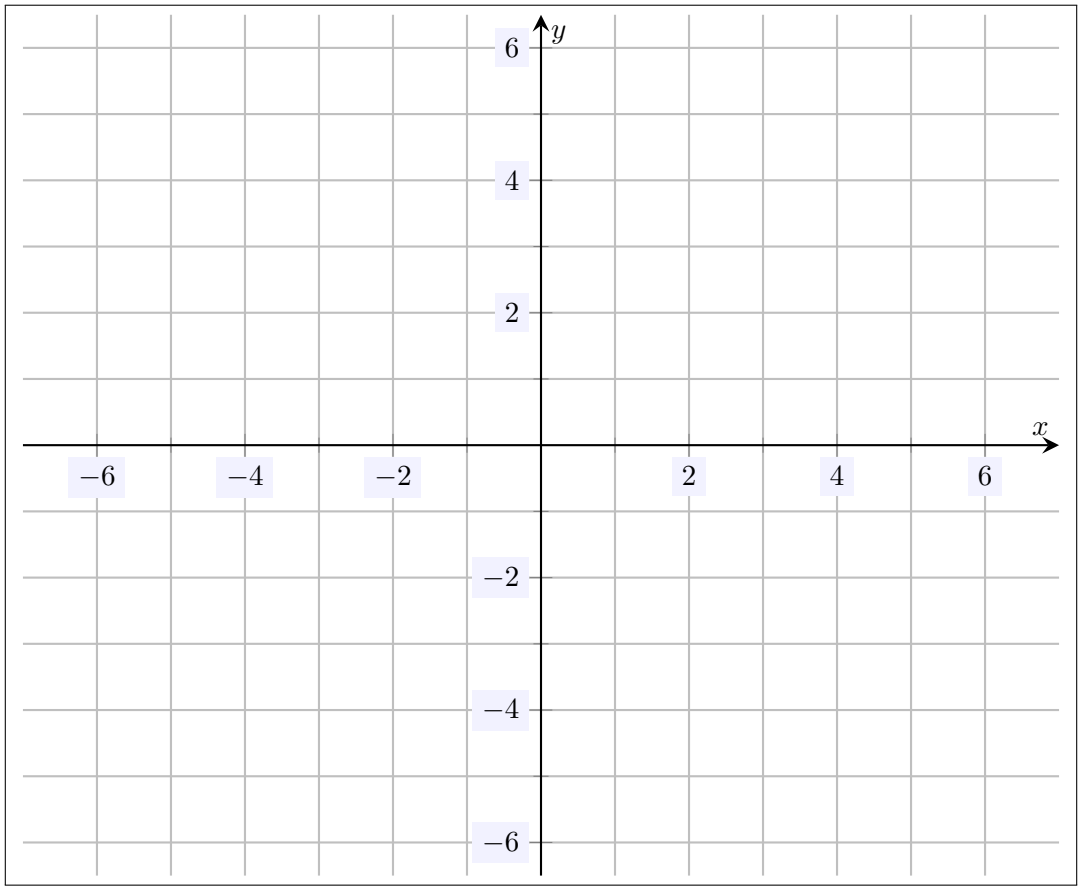
Name: _____
MATH 101
Fall 2021
HW 6: Due 10/08

"I'm fine. It's just that life is pointless and nothing matters and I'm always tired."
–Andy Dwyer, Parks and Recreation

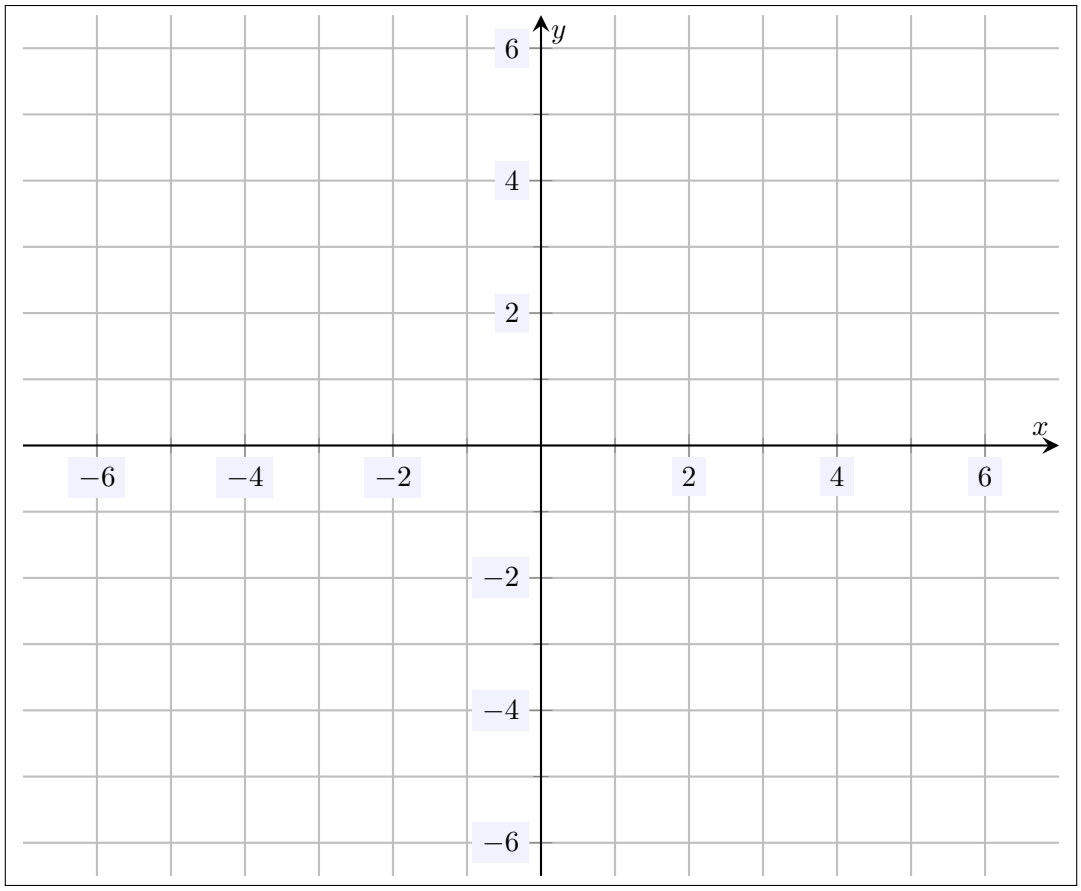
Problem 1. (10pt) Plot the function $f(x) := 4 - 3x$, being as accurate as possible.



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



Problem 3. (10pt) Plot the function $f(x) := \dfrac{x+1}{x^2+1}$, 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.

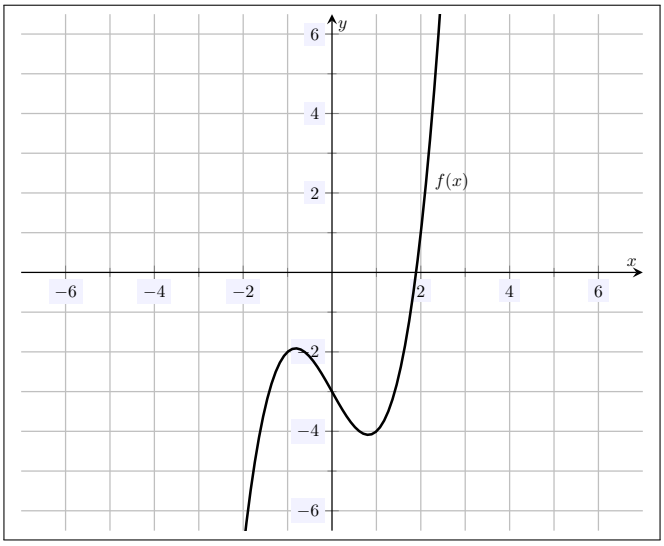
(d) Is $(3, 5)$ on the graph of $f(x)$? Explain.

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.