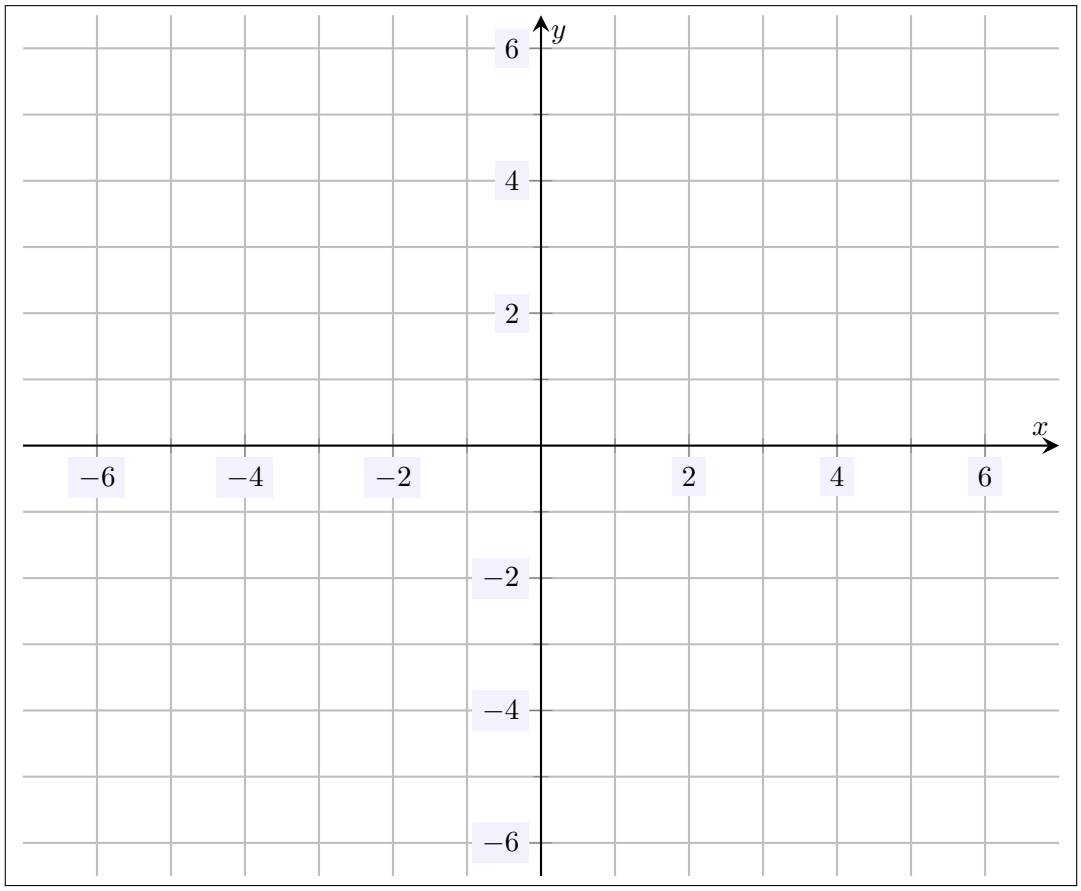
**Name:** _____

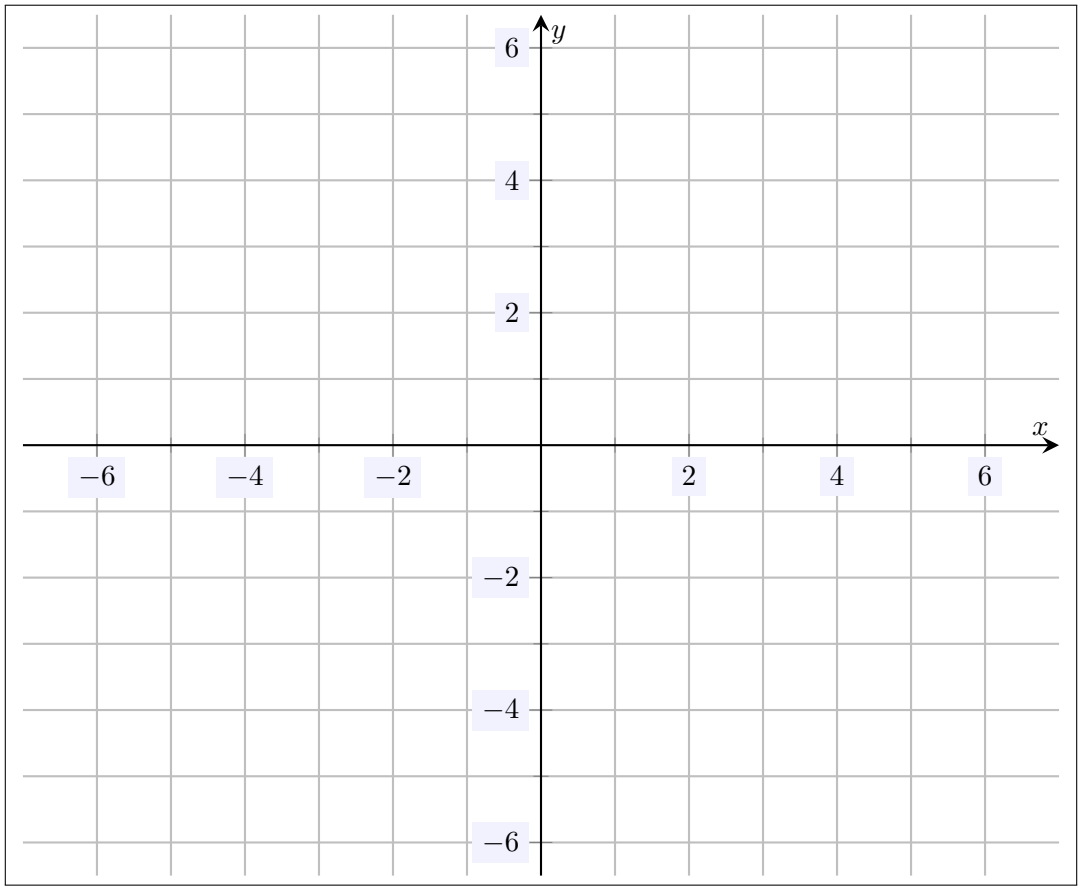
**MATH 100**
**Fall 2021**
**HW 5: Due 10/06**

*"Martini. Gin, not vodka. Obviously. Stirred for 10 seconds while glancing at an unopened bottle of vermouth."*
*– Gary 'Eggsy' Unwin, The Kingsman*

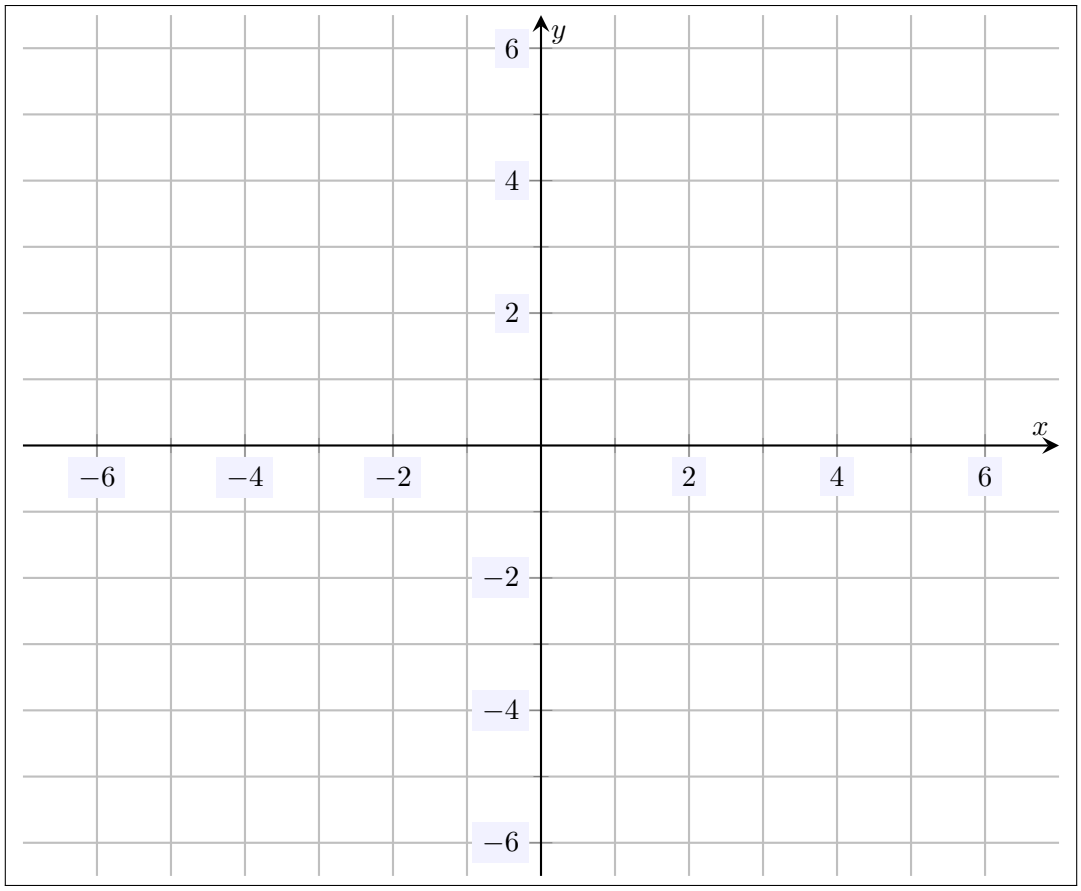
**Problem 1.** (10pt) Plot the function $f(x) := 3 - 2x$, being as accurate as possible.



**Problem 2.** (10pt) Plot the function $f(x) := x^2 + 2x - 3$, 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 $f(x) := 4x - 7$.

(a) Find $f(1)$.

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

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

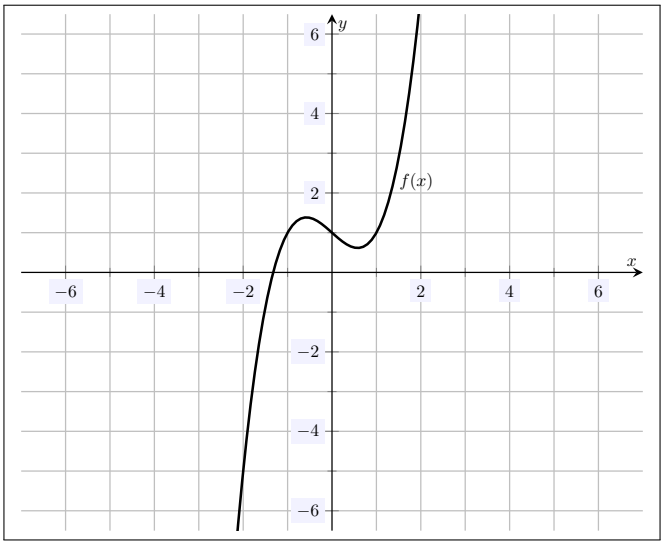
(d) Is $(3, 5)$ on the graph of $f(x)$? Explain.

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

$$f(x) := x - x^3$$
$$g(x) := x^2 - 3x + 1$$
$$h(x) := x^4 + 1$$

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

(c) Is the point $(-2, 3)$ on the graph of $f(x)$? Explain.

(d) Is the function $f(x)$ even, odd, or neither. Explain.