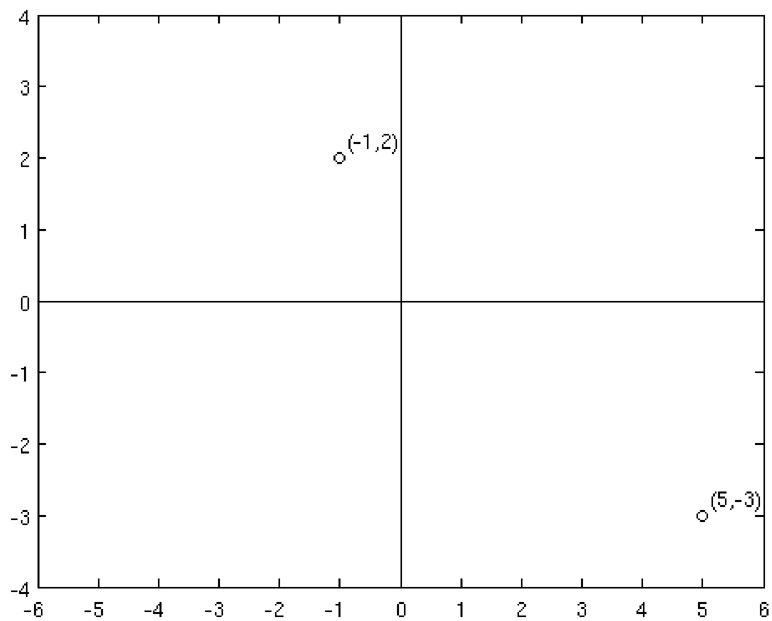
1 Solving Even/Odd Problems with Specific Numbers

In class we did not have quite enough time to cover the even/odd example that I was going over, so I would like to write a bit about it now. Let's begin with the question in a slightly different format:

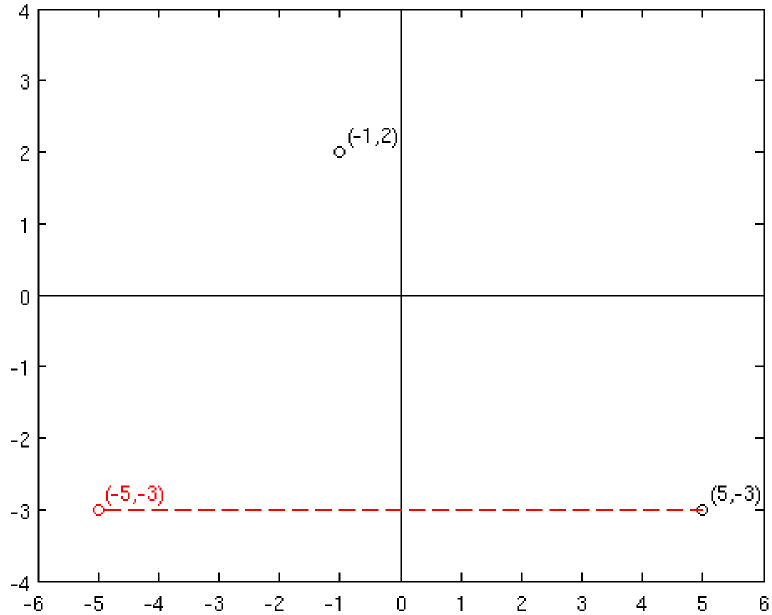
The table below contains a few points from a function $f(x)$. You are told that $f(x)$ is an even function. Using the fact that $f(x)$ is even, fill in the rest of the values of the table.

x	-5	-1	1	5
$f(x)$		2		-3

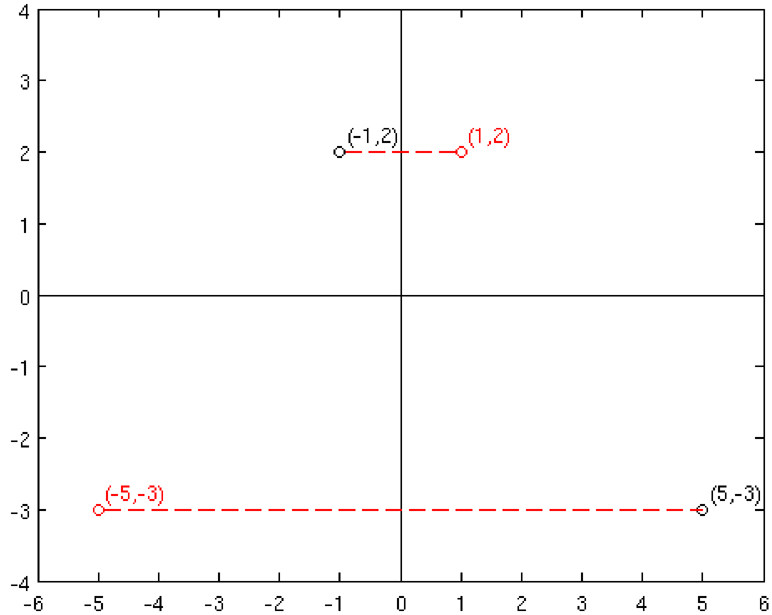
This is the same as begin told that $f(5) = -3$ and $f(-1) = 2$, then being asked to find $f(-5)$ and $f(-1)$. Like in class, I will solve this problem graphically. We begin by plotting the two points we know, $f(5) = -3$ and $f(-1) = 2$, on a graph, as below



Now we will reflect each point across the $y-$ axis. Starting with $f(5) = -3$



and then $f(-1) = 2$



then we have added two more points: $(-5, -3)$ and $(1, 2)$. This means that $f(-5) = -3$ and $f(1) = 2$. Then we can fill out the table as

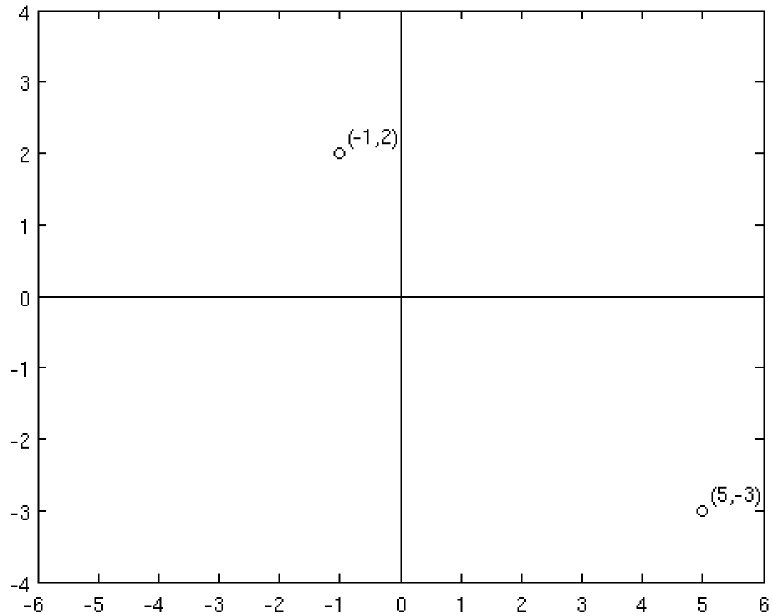
x	-5	-1	1	5
$f(x)$	-3	2	2	-3

Let's do the same thing again, except with an odd function. The problem is

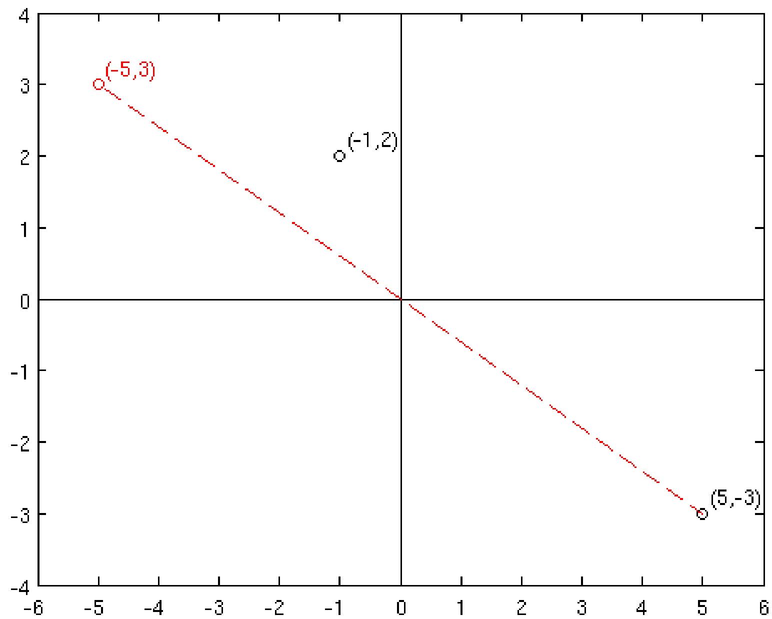
The table below contains a few points from a function $g(x)$. You are told that $g(x)$ is an odd function. Using the fact that $g(x)$ is odd, fill in the rest of the values of the table.

x	-5	-1	1	5
$g(x)$		2		-3

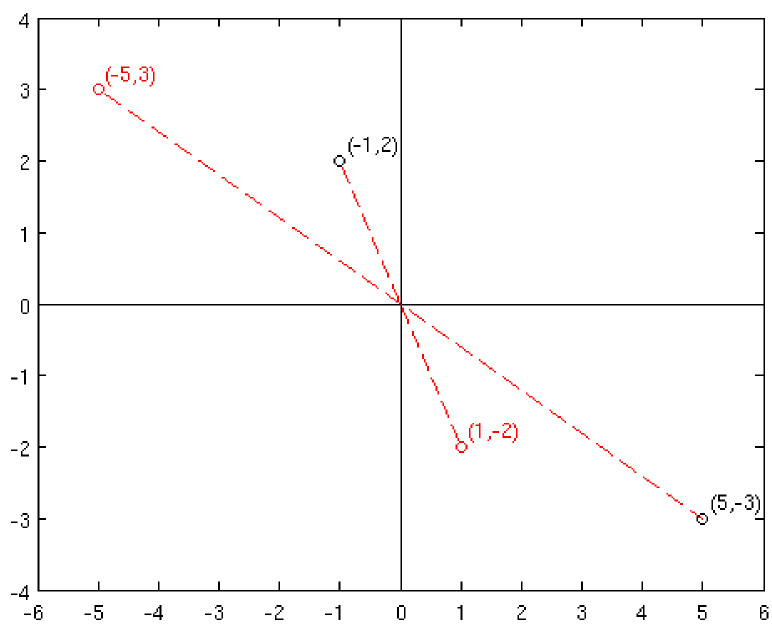
Again, we start by plotting the two points that we know, $g(-1) = 2$ and $g(5) = -3$.



Now we will reflect each point through the origin. We begin with the point $(5, -3)$



and then $(-1, 2)$



and so we have added two new points to the graph: $(-5, 3)$ and $(1, -2)$. Then we can fill out the rest of the table as

x	-5	-1	1	5
$f(x)$	3	2	-2	-3

Can you complete the table below if $h(x)$ is even? What if $h(x)$ is odd?

x	-5	-3	-1	1	3	5
$h(x)$	7			3	-4	