COLLEGE REVIEW MATH **SECTION 4C (REFLECTING GRAPHS)**

Consider the function;
$f(x) = 3x - 7$

What would the coordinates be for $-f(x)$?

$f(0) = -7$	or	$(0, -7)$	$-1 \cdot f(0) =$
$f(2) = -1$	or	$(2, -1)$	$-1 \cdot f(2) =$
$f(3) = 2$	or	$(3, 2)$	$-1 \cdot f(3) =$
$f(5) = 8$	or	$(5, 8)$	$-1 \cdot f(5) =$

x/y-charts for $-f(x)$
Example:

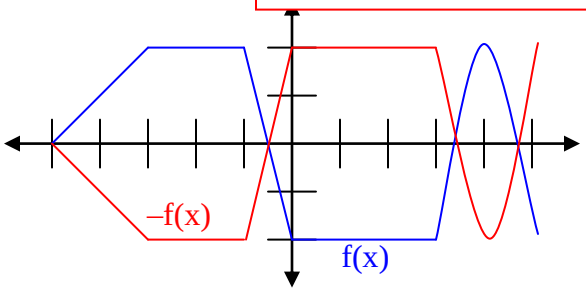
Simply switch the sign of the y-coordinate.

$f(x) =$	x	y
	3	-1
	0	7
	-2	11
	-7	19
	-9	-2

$-f(x) =$	x	y
	3	1
	0	-7
	-2	-11
	-7	-19
	-9	2

graphing $-f(x)$

Reflect the graph over the x-axis. i.e. you are changing the signs of the y-coordinates.



If all the x-values remained the same, and all the y-values changed signs for -f(x), what will happen to the coordinates for f(-x) ?

All the y-values will remain the same, but all the x-values will change signs.

x/y-charts for f(-x)
Example:

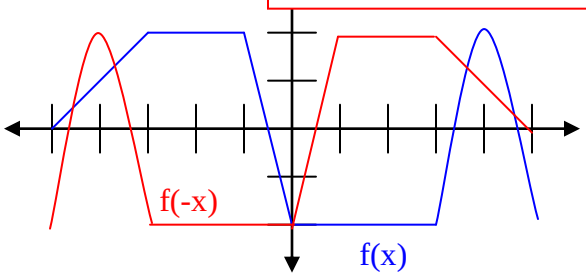
Simply switch the sign of the x-coordinate.

$f(x) =$	x	y
	3	-1
	0	7
	-2	11
	-7	19
	-9	-2

$-f(x) =$	x	y
	-3	-1
	0	7
	2	11
	7	19
	9	-2

graphing f(-x)

Reflect the graph over the y-axis. i.e. you are changing the signs of the x-coordinates.



Reflecting an absolute value

x/y-chart for | f(x) |

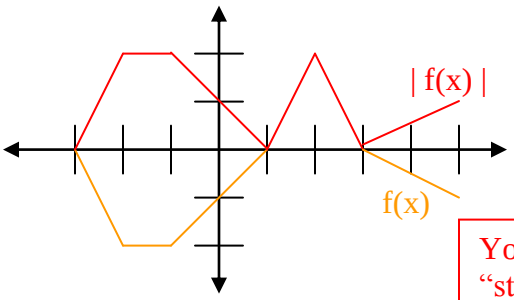
f(x) =	x	y
	-1	8
	0	4
	5	-2
	8	-6
	9	0

| f(x) | =	x	y
	-1	8
	0	4
	5	2
	8	6
	9	0

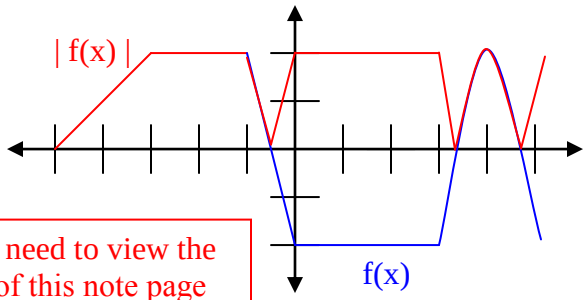
Coordinates: the x-value remains the same, but the y becomes | y |.
Graphs: reflect only the bottom portion of the graph over the x-axis.

Graphs can be tricky!
Examples: graph | f(x) | for each

1) graph | f(x) |



2) graph | f(x) |



You will probably need to view the "student" version of this note page to see the true effect on the graphs.

Wrap up. If…

f(x) =	x	y
	-6	10
	-5	2
	0	1
	6	-3
	13	-13

1) coord. for y = x (inverse)

	10	-6
	2	-5
	1	0
	-3	6
	-13	13

2) coord. for –f(x)

	-6	-10
	-5	-2
	0	-1
	6	3
	13	13

3) coord. for f(-x)

	6	10
	5	2
	0	1
	-6	-3
	-13	-13

4) coord. for | f(x) |

	-6	10
	-5	2
	0	1
	6	3
	13	13

Graphs (Need more examples?)