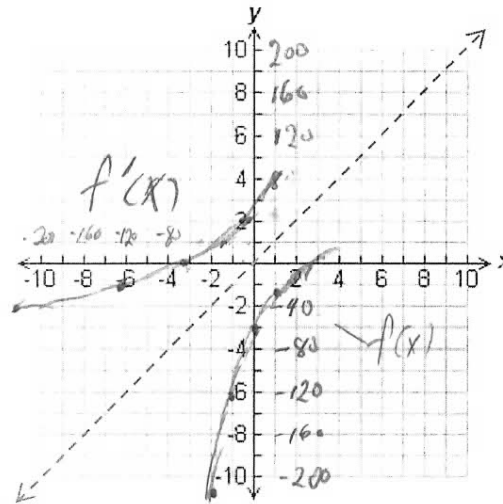


M3H - U4 Day 1 HW

1. Given $f(x) = (x - 4)^3 + 1$, complete the T-tables, switch the D and R values, and sketch both graphs on the same axes. Note the reflection over $y = x$.

x	f(x)
-2	-215
-1	-124
0	-63
1	-26
2	-7

x	$f^{-1}(x)$
215	-2
124	-1
-63	0
-26	1
-7	2



$$x = (y - 4)^3 + 1$$

$$x - 1 = (y - 4)^3$$

$$(x - 1)^{1/3} = y - 4$$

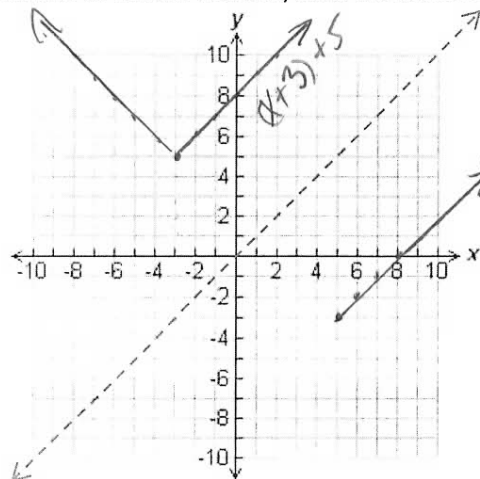
$$(x - 1)^{1/3} + 4 = y$$

	f(x)	$f^{-1}(x)$
Domain (Restrict if needed so $f^{-1}(x)$ is a function.)	$(-\infty, \infty)$	$(-\infty, \infty)$
Range	$(-\infty, \infty)$	$(-\infty, \infty)$
End Behavior	$x \rightarrow \infty, y \rightarrow \infty$ $x \rightarrow -\infty, y \rightarrow -\infty$	$x \rightarrow \infty, y \rightarrow \infty$ $x \rightarrow -\infty, y \rightarrow -\infty$

2. Given $f(x) = |x + 3| + 5$, complete the T-tables, switch the D and R values, and sketch both graphs on the same axes. Note the reflection over $y = x$.

x	f(x)
-2	6
-1	7
0	8
1	9
2	10

x	$f^{-1}(x)$
6	-2
7	-1
8	0
9	1
10	2



Positive side

$$y = (x + 3) + 5$$

$$D[-3, \infty)$$

$$R[5, \infty)$$

$$x = (y + 3) + 5$$

$$x - 8 = y$$

$$D[5, \infty)$$

$$R[-3, \infty)$$

	f(x)	$f^{-1}(x)$
	$x + 8$	$x - 8$
Domain (Restrict if needed so $f^{-1}(x)$ is a function.)	$[-3, \infty)$	$[5, \infty)$
Range	$[5, \infty)$	$[-3, \infty)$
End Behavior	$x \rightarrow -3, y \rightarrow 5$ $x \rightarrow \infty, y \rightarrow \infty$	$x \rightarrow 5, y \rightarrow -3$ $x \rightarrow \infty, y \rightarrow \infty$