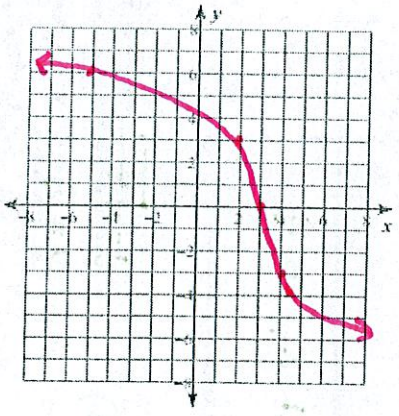
Lesson 2.5 Homework (Part 1)

1. Graph $y = -3\sqrt[3]{x-3}$



X	Y
-5	6
2	3
3	0
4	-3
11	-6

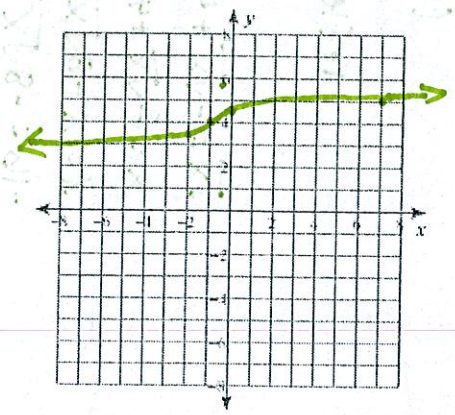
Transformations:
reflect over x, stretch, R3

Domain:
$(-\infty, \infty)$

Range:
$(-\infty, \infty)$

End Behavior:
$y \to \infty,\ x \to -\infty$
$y \to -\infty,\ x \to \infty$

2. Graph $y = \frac{1}{2}\sqrt[3]{x+1} + 4$



X	Y
-2	3.5
-1	4
0	4.5
7	5

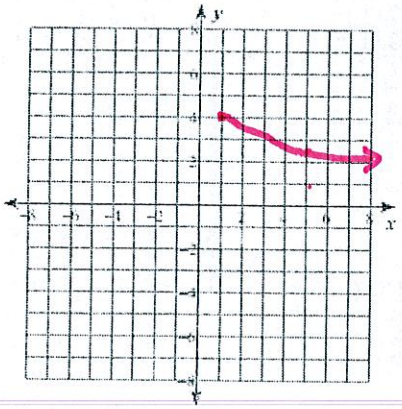
Transformations:
compress, L1, U4

Domain:
$(-\infty, \infty)$

Range:
$(-\infty, \infty)$

End Behavior:
$y \to -\infty,\ x \to -\infty$
$y \to \infty,\ x \to \infty$

3. Graph $y = -\frac{3}{4}\sqrt{x-1} + 4$



X	Y
1	4
5	2.5

Transformations:
reflect over x, compression, R1, U4

Domain:
$[1, \infty)$

Range:
$(-\infty, 4]$

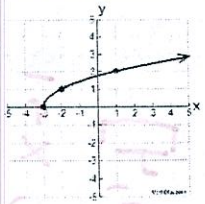
End Behavior:
$y \to 4,\ x \to 1$
$y \to -\infty,\ x \to \infty$

Graphing Radical Functions

Name_____

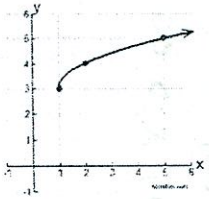
Directions: For questions 1 through 8, choose the best answer.

1. Which equation represents the graph shown at the right?



1) $y=\sqrt{x-3}$
2) $y=-\sqrt{x-3}$
3) $y=\sqrt{x+3}$
4) $y=-\sqrt{x+3}$

2. Which equation represents the graph shown at the right?



1) $y=\sqrt{x-1}+3$
2) $y=\sqrt{x+1}+3$
3) $y=\sqrt{x-3}+1$
4) $y=\sqrt{x+3}+1$

3. What is the domain of the function $y=\sqrt{2x+1}$?

1) $[2,\infty)$
2) $[-2,\infty)$
3) $\left[\frac{1}{2},\infty\right)$
4) $\left[-\frac{1}{2},\infty\right)$

4. What is the domain of the function $y=\sqrt{x-1}+4$?

1) $[1,\infty)$
2) $[3,\infty)$
3) $[5,\infty)$
4) $[-1,\infty)$

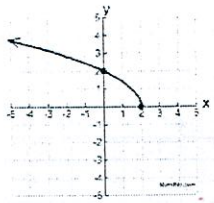
5. What is the domain of the function $y=\sqrt{x^2-4}$?

1) $[2,\infty)$
2) $(-\infty,-2]$ or $[2,\infty)$
3) $[-2,\infty)$
4) $[-2,\infty)$ and $[2,\infty)$

6. What is the domain of the function $y=-\sqrt{x+6}+3$

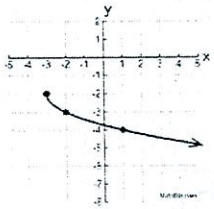
1) $[6,\infty)$
2) $[9,\infty)$
3) $[-6,\infty)$
4) $[-9,\infty)$

7. Which equation represents the graph shown at the right?



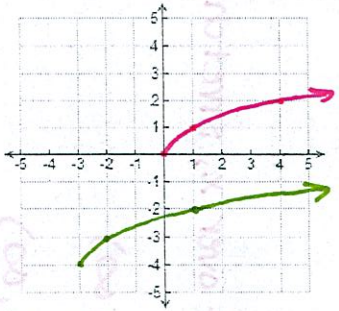
1) $y=\sqrt{2x-4}$
2) $y=-\sqrt{2x-4}$
3) $y=\sqrt{4+2x}$
4) $y=\sqrt{4-2x}$

8. Which equation represents the graph shown at the right?



1) $y=-\sqrt{x+3}-2$
2) $y=-\sqrt{x-3}-2$
3) $y=\sqrt{3-x}-2$
4) $y=-\sqrt{3-x}-2$

9. a) Graph the functions $f(x)=\sqrt{x}$ and $g(x)=\sqrt{x+3}-4$ on the axes at the right.



b) State the domain of $f(x)=\sqrt{x}$.

$[0,\infty)$

c) State the range of $f(x)=\sqrt{x}$.

$[0,\infty)$

d) State the domain of $g(x)=\sqrt{x+3}-4$.

$[-3,\infty)$

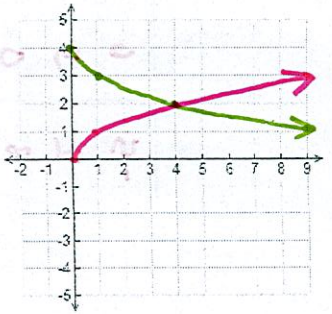
e) State the range of $g(x)=\sqrt{x+3}-4$.

$[-4,\infty)$

f) Describe the transformation(s) that will produce $g(x)$ as the image of $f(x)$.

L3, D4

10. a) Graph the functions $f(x)=\sqrt{x}$ and $g(x)=-\sqrt{x}+4$ on the axes at the right.



b) State the domain of $g(x)=-\sqrt{x}+4$.

$[0,\infty)$

c) State the range of $g(x)=-\sqrt{x}+4$.

$(-\infty,4]$

d) Find the point of intersection of the two functions. Justify your answer algebraically.

$(4,2)$

f) Describe the transformation(s) that will produce $g(x)$ as the image of $f(x)$.

reflection over x, up 4

$\sqrt{x}=-\sqrt{x}+4$

$x=(-\sqrt{x}+4)(-\sqrt{x}+4)$

$x=x-8\sqrt{x}+16$

$-16=-8\sqrt{x}$

$2=\sqrt{x}$ $\quad x=4$

$y=\sqrt{4}$

$y=2$