

Transforming Day 2 Homework

1. $f(x) = \sqrt{x+2}$

PF: sq. root $f(x) = \sqrt{x}$

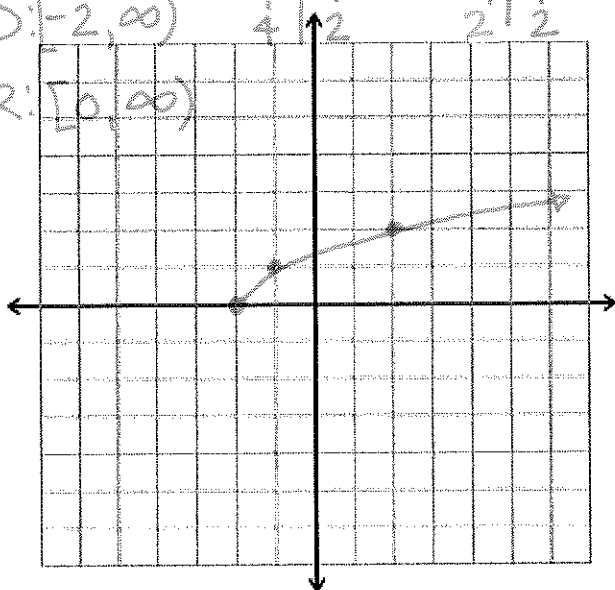
Trans:

• left 2

x	y	→	X-2	Y
0	0		-2	0
1	1		-1	1
4	2		2	2

D: $[-2, \infty)$

R: $[0, \infty)$



2. $f(x) = -\sqrt{x-1}$

PF: sq. root $f(x) = \sqrt{x}$

Trans:

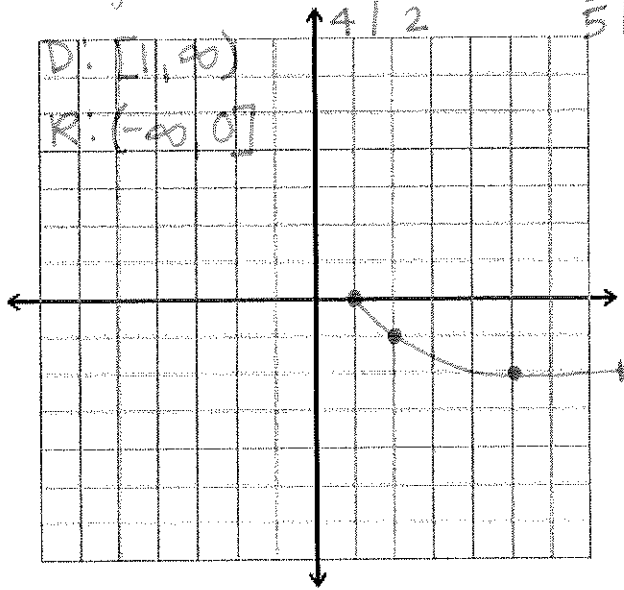
• ref. x axis

• right 1

x	y	→	X+1	-Y
0	0		1	0
1	1		2	-1
4	2		5	-2

D: $[1, \infty)$

R: $(-\infty, 0]$



3. $f(x) = \sqrt{-x+3} - 1$

PF: sq. root $f(x) = \sqrt{x}$

Trans:

• ref. y-axis

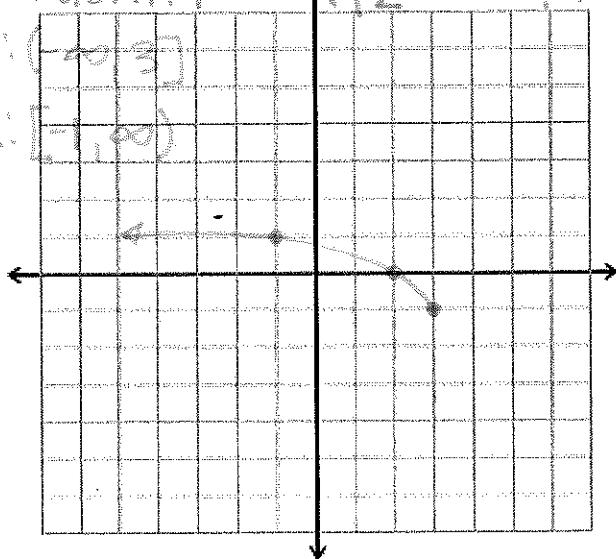
• right 3

• down 1

x	y	→	-X+3	Y-1
0	0		3	-1
1	1		2	0
4	2		-1	1

D: $(-\infty, 3]$

R: $[-1, \infty)$



4. $f(x) = -1/2(x-4)^2 - 3$

PF: Quad. $f(x) = x^2$

Trans:

• ref x-axis

• Vert comp by 1/2

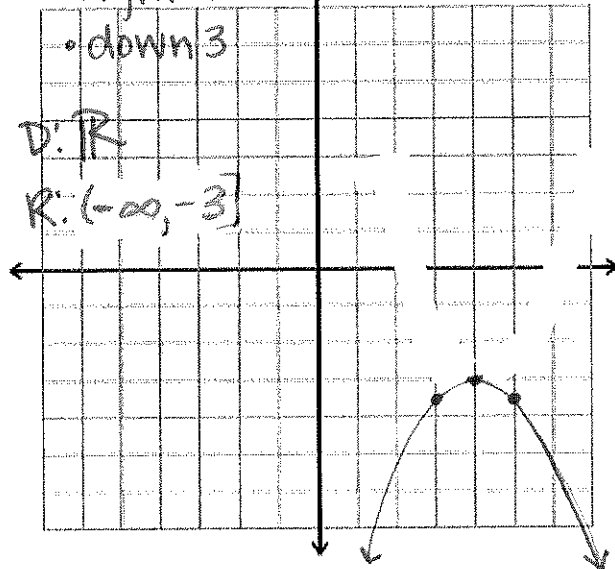
• right 4

• down 3

x	y	→	X+4	1/2 Y-3
-1	1		3	-3 1/2
0	0		4	-3
1	1		5	-3 1/2

D: \mathbb{R}

R: $(-\infty, -3]$



5. $f(x) = 3\sqrt{x} - 5$

PF: Sq. root $f(x) = \sqrt{x}$

Trans:

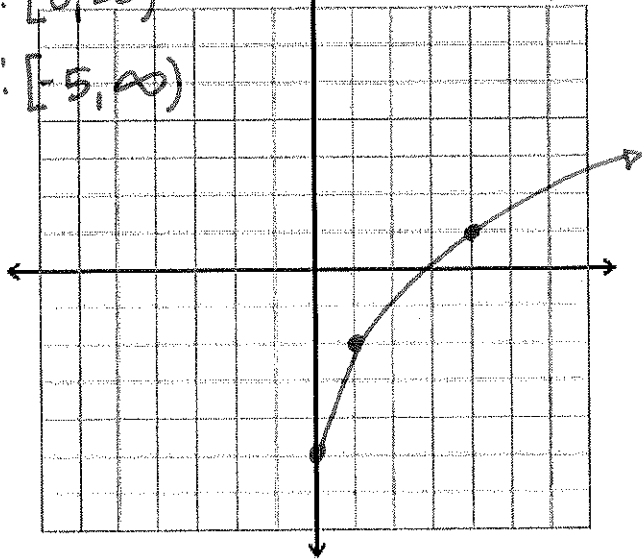
- Vert. st. by 3
- down 5

x	y
0	0
1	1
4	2

 \rightarrow

x	3y-5
0	-5
1	-2
4	1

D: $[0, \infty)$
R: $[-5, \infty)$



6. $f(x) = -\sqrt{-x+2} + 2$

PF: Sq. root $f(x) = \sqrt{x}$

Trans:

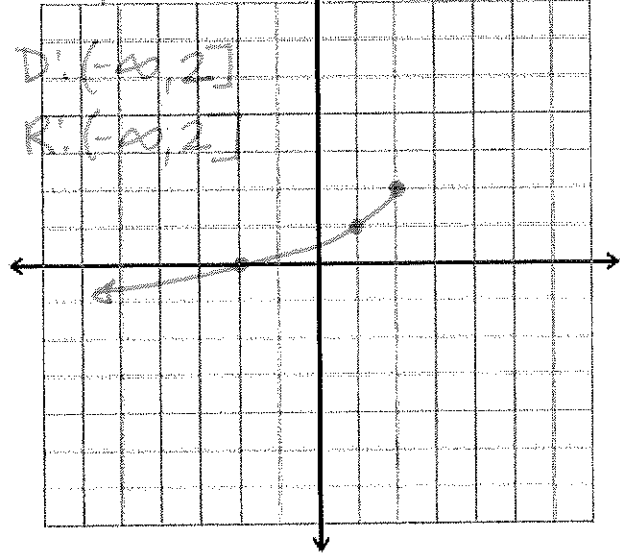
- refl. y-axis
- refl. x-axis
- right 2
- up 2

x	y
0	0
1	1
4	2

 \rightarrow

-x+2	-y+2
2	2
1	1
-2	0

D: $(-\infty, 2]$
R: $(-\infty, 2]$



7. $f(x) = (x-3)^3$

PF: cubic $f(x) = x^3$

Trans:

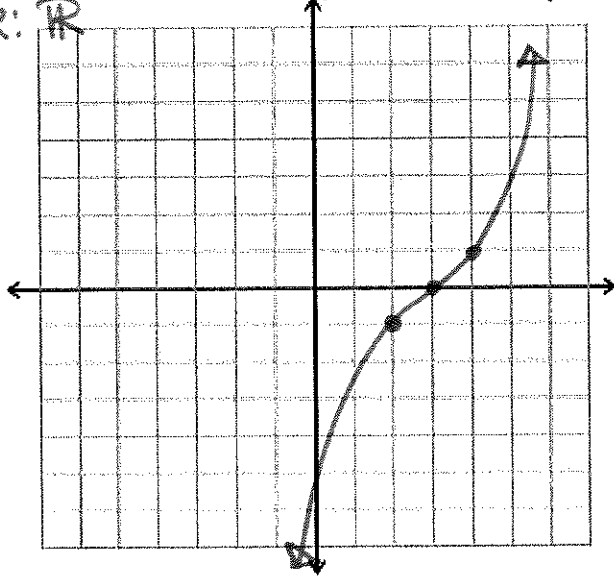
- right 3

x	y
-1	-1
0	0
1	1

 \rightarrow

x+3	y
2	-1
3	0
4	1

D: \mathbb{R}
R: \mathbb{R}



8. $f(x) = (x+2)^3 - 3$

PF: cubic $f(x) = x^3$

Trans:

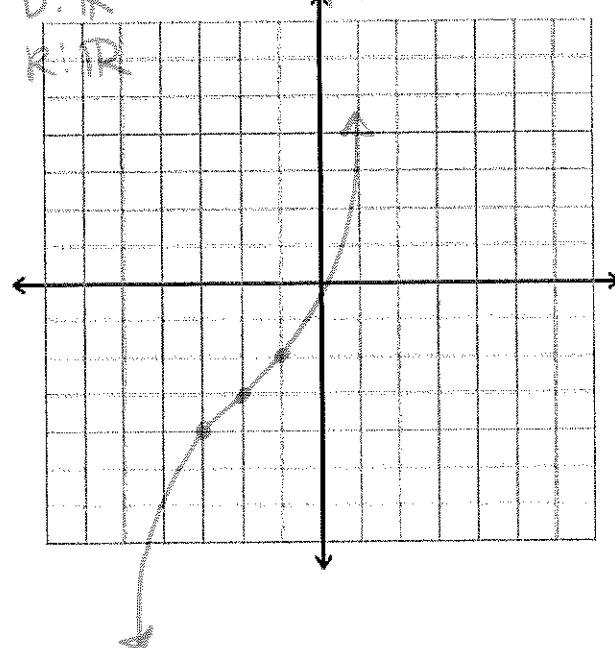
- left 2
- down 3

x	y
-1	-1
0	0
1	1

 \rightarrow

x-2	y-3
-3	-4
-2	-3
-1	-2

D: \mathbb{R}
R: \mathbb{R}



9. $f(x) = -(x - 1)^2 + 2$

PF: Quad $f(x) = x^2$

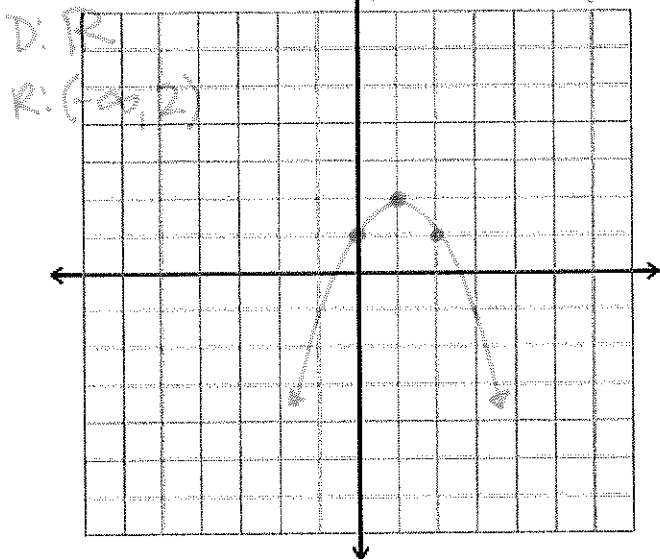
Trans:

• refl. x-axis

• right 1

• up 2

X	Y	→	X+1	Y+2
-1	1		0	1
0	0		1	2
1	1		2	1



10. $f(x) = (1/2x)^3 - 4$

PF: cubic $f(x) = x^3$

Trans:

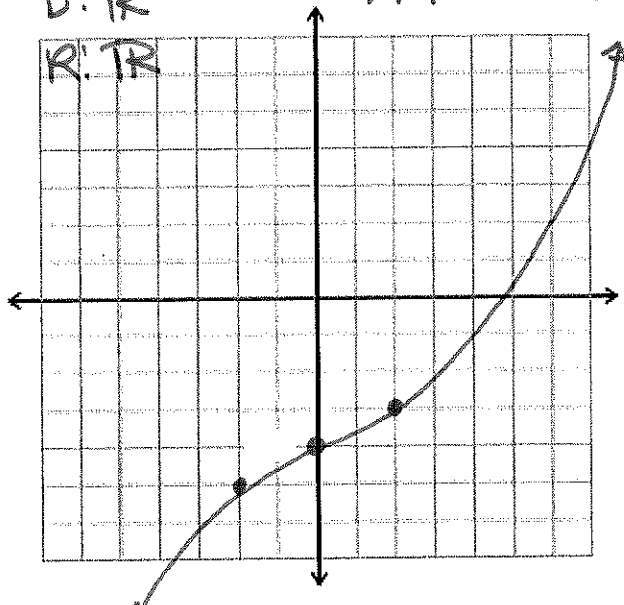
• horiz st. by 2

• down 4

X	Y	→	2X	Y-4
-1	-1		-2	-5
0	0		0	-4
1	1		2	-3

D: \mathbb{R}

R: \mathbb{R}



11. $f(x) = (x + 1)^2 + 3$

PF: Quad $f(x) = x^2$

Trans:

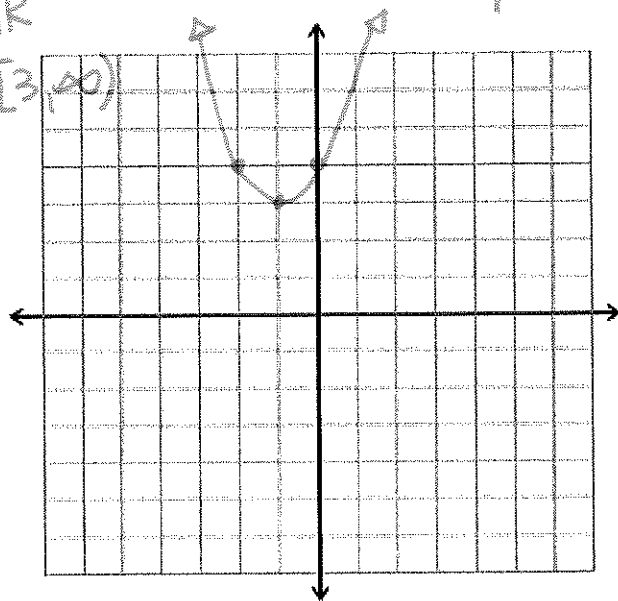
• left 1

• up 3

X	Y	→	X-1	Y+3
-1	1		-2	4
0	0		-1	3
1	1		0	4

D: \mathbb{R}

R: $[3, \infty)$



12. $f(x) = x^3 + 1$

PF: cubic $f(x) = x^3$

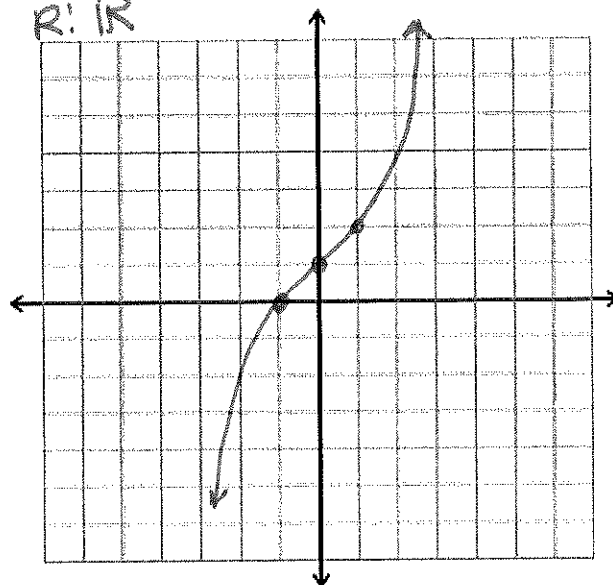
Trans:

• up 1

X	Y	→	X	Y+1
-1	-1		-1	0
0	0		0	1
1	1		1	2

D: \mathbb{R}

R: \mathbb{R}



13. $f(x) = 2^{x-3} - 2$

PF: exp. $f(x) = 2^x$

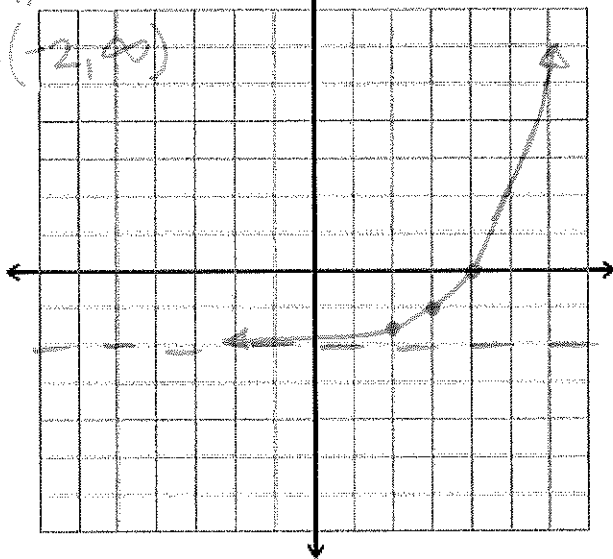
Trans:

- right 3
- down 2

X	Y	\rightarrow X+3	Y-2
-1	1/2	2	-1 1/2
0	1	3	-1
1	2	4	0

D: \mathbb{R}

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



14. $f(x) = 1/2 (3)^{x+5} - 4$

PF: exp. $f(x) = 3^x$

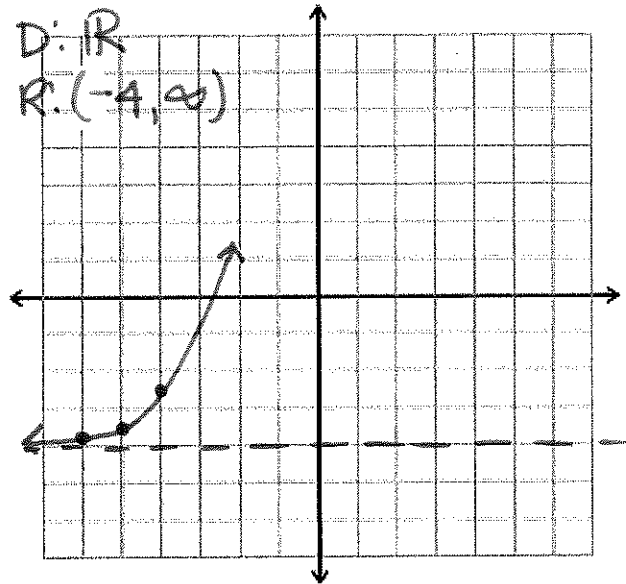
Trans:

- vert comp. by 1/2
- left 5
- down 4

X	Y	\rightarrow X-5	1/2 Y-4
-1	1/3	-6	-3 5/6
0	1	-5	-3 1/2
1	3	-4	-2 1/2

D: \mathbb{R}

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



15. $f(x) = -(2)^{x+1} + 3$

PF: exp $f(x) = 2^x$

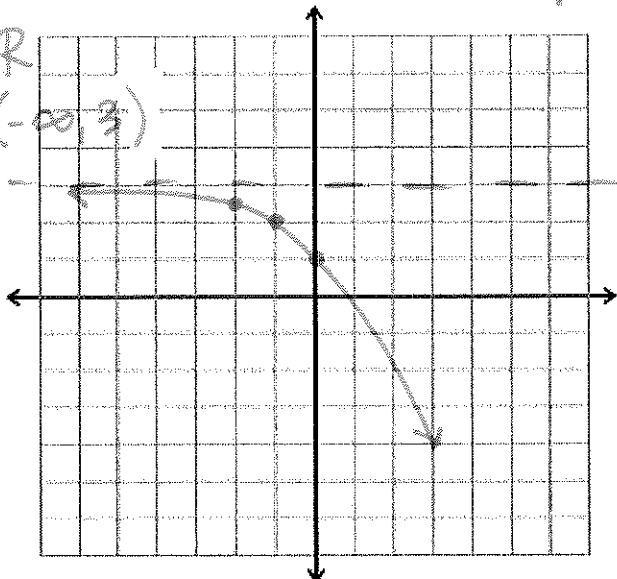
Trans:

- refl x-axis
- left 1
- up 3

X	Y	\rightarrow X-1	-Y+3
-1	1/2	-2	2 1/2
0	1	-1	2
1	2	0	1

D: \mathbb{R}

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



16. $f(x) = -(3)^{x-2}$

PF: exp. $f(x) = 3^x$

Trans:

- refl x-axis
- right 2

X	Y	\rightarrow X+2	-Y
-1	1/3	1	-1/3
0	1	2	-1
1	3	3	-3

D: \mathbb{R}

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

