

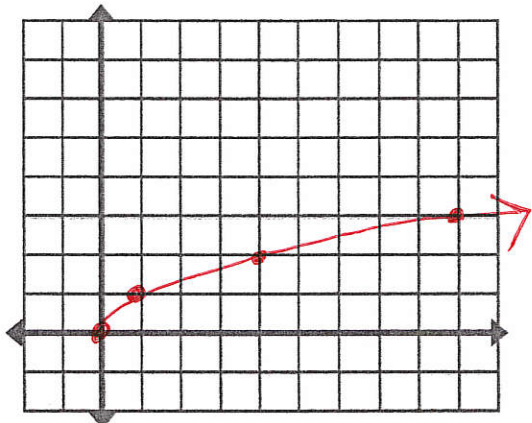
Key

7. U2D3 PRACTICE SHIFTS WITH SQUARE ROOT FUNCTION

Describe the transformations. Graph

$y = \sqrt{x}$

x	y
0	0
1	1
4	2
9	3



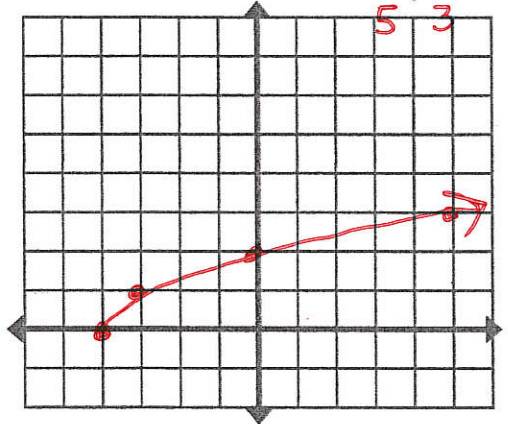
Section 1: Graph

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

shift: $c = -4$
4 left

$x-4$
↓

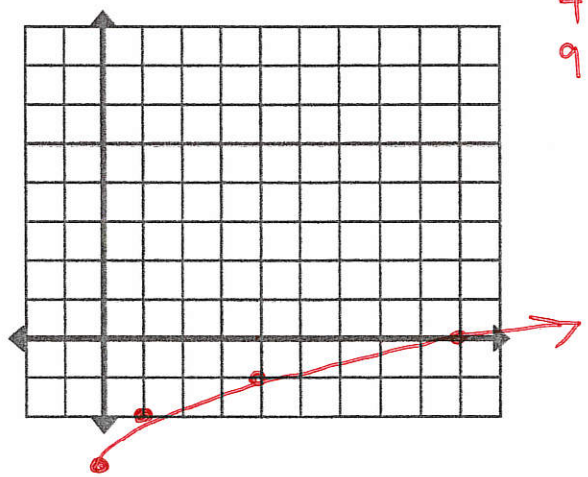
x	y
-4	0
-3	1
0	2
5	3



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

shift: $d = -3$
down 3

x	y-3
0	-3
1	-2
4	-1
9	0

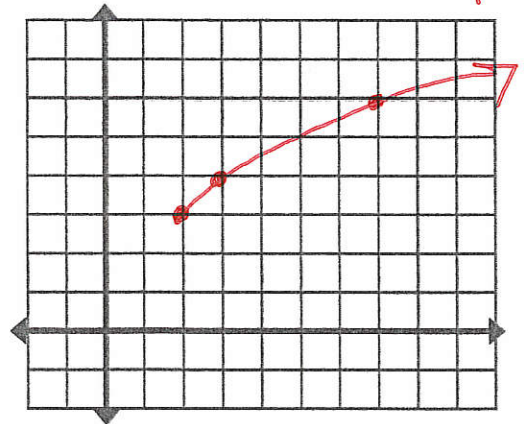


3) $y = \sqrt{x-2} + 3$

shifts: $c = 2$ rt
 $d = 3$ up

$x+2$ | $y+3$

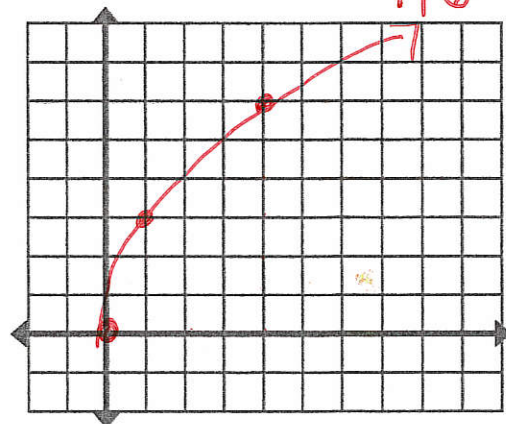
x	y
2	3
3	4
7	5



4) $y = 3\sqrt{x}$

stretch: $a = 3$

x	3y
0	0
1	3
4	6



$$a = -1$$

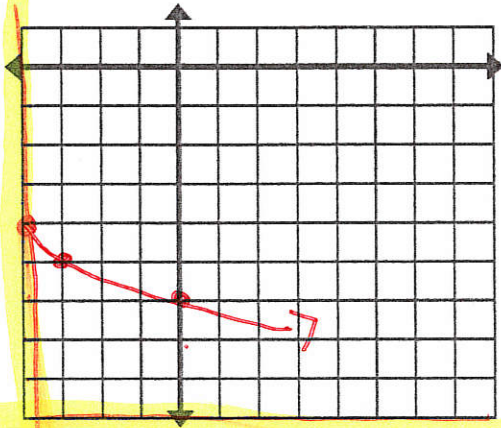
$$d = 5$$

$$5) y = -\sqrt{x} + 5$$

$$\left(\frac{x}{b} + c, ay + d\right)$$

shifts:

x	y
0	5
1	4
4	3



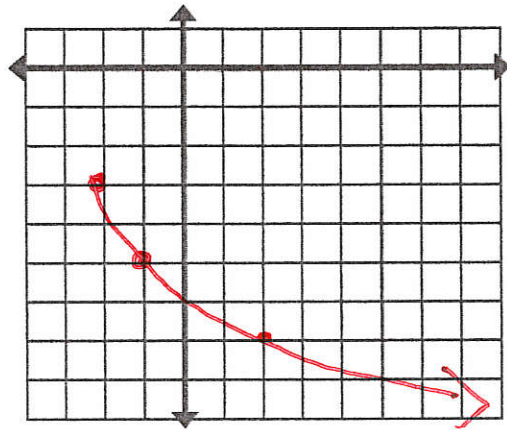
$$\left(\frac{x}{b} + c, ay + d\right)$$

$$6) y = -2\sqrt{x+2} - 3$$

$$a = -2 \quad c = -2 \quad d = -3$$

shifts:

x	y
-2	-3
-1	-5
2	-7



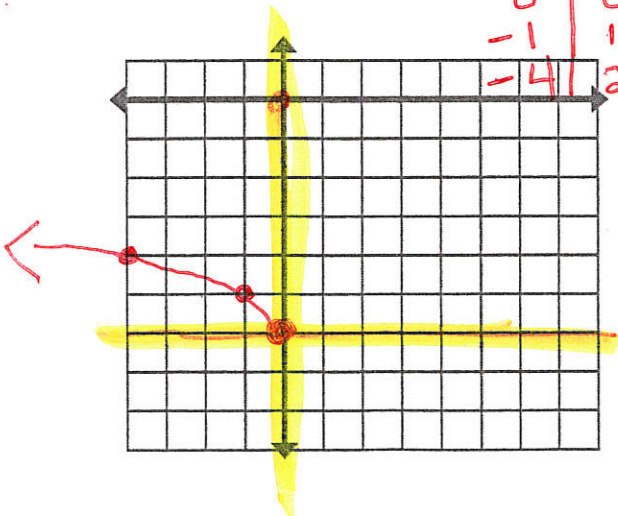
$$7. y = \sqrt{-x}$$

↑

$b = -1$ reflect over y

$$\left(\frac{x}{b} + c, ay + d\right)$$

x	y
0	0
-1	1
-4	2

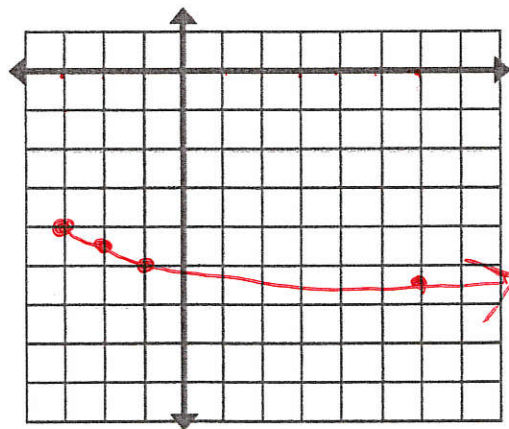


$$8. y = -\frac{1}{2}\sqrt{x+3} - 4$$

$$a = -\frac{1}{2} \quad c = -3 \quad d = -4$$

$$\left(\frac{x}{b} + c, ay + d\right)$$

$$\left(x - 3, -\frac{1}{2}y - 4\right)$$



-3	-4
-2	-4.5
1	-5
6	-5.5