

Name Key

Accelerated Geom/Alg. 2  
Graphing and Solving Practice

Use your t-tables to graph the following. State the domain and range, and the transformations performed.

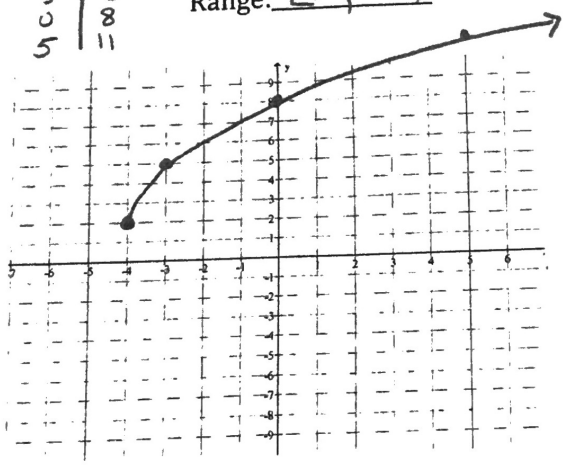
1.  $y = 3\sqrt{x+4} + 2$

Transformations: vertical stretch of 3, left 4, up 2

x-4	y
-4	2
-3	5
0	8
5	11

Domain:  $[-4, \infty)$

Range:  $[2, \infty)$



2.  $f(x) = -\frac{1}{2}\sqrt[3]{x-1} - 4$

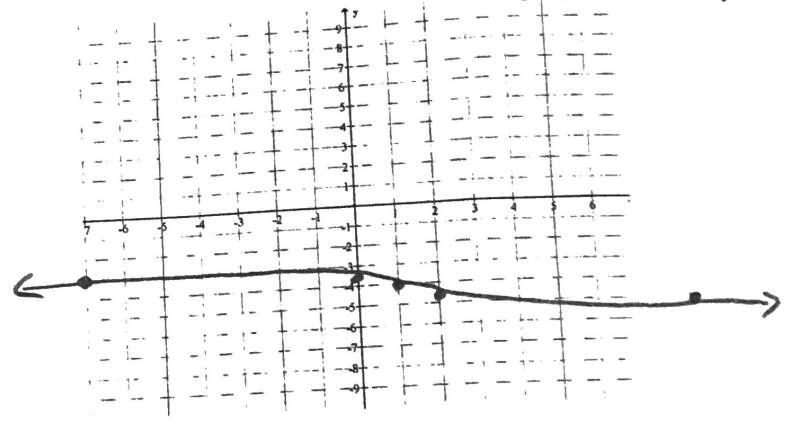
Transformations: reflection over x-axis, vertical shrink of 1/2, right 1, down 4

x	y
-8	-2
-1	-1
0	0
1	1
8	2

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

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

x+1	-1/2 y - 4
-7	-3
0	-3 1/2
1	-4
2	-4.5
9	-5



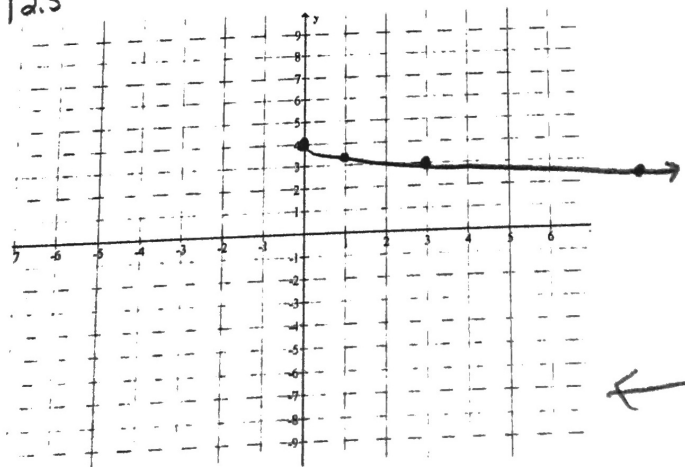
3.  $h(x) = -\frac{1}{2}\sqrt{x} + 4$

Transformations: reflection over x-axis, vertical shrink of 1/2, up 4

x	-1/2 y + 4
0	4
1	3.5
4	3
9	2.5

Domain:  $[0, \infty)$

Range:  $(-\infty, 4]$



4.  $y = \sqrt[3]{x+4} - 5$

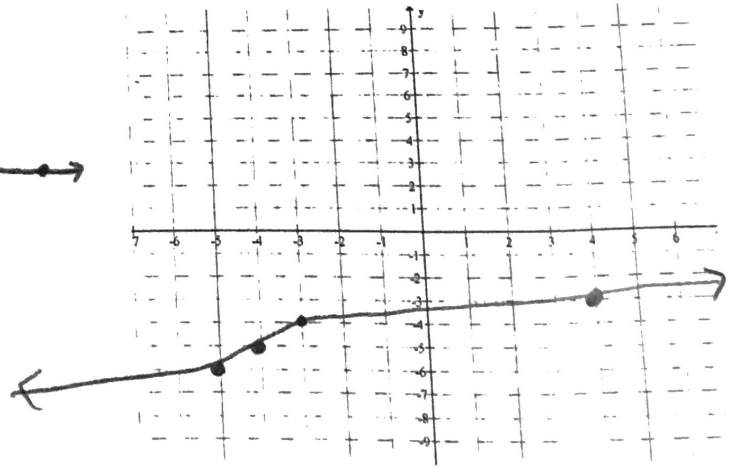
Transformations: left 4, down 5

x	y
-8	-2
-1	-1
0	0
1	1
8	2

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

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

x-4	y-5
-12	-7
-5	-6
-4	-5
-3	-4
1	-3



Solve the following:

$$5. \sqrt{3x+24} = x+2$$

$$3x+24 = x^2+4x+4$$

$$0 = x^2+x-20$$

$$0 = (x+5)(x-4)$$

$$x = -5, 4$$

$$\boxed{x=4}$$

-5 is extraneous

$$7. 12 = (2x-5)^3 + 4$$

$$8 = (2x-5)^3$$

$$2 = 2x-5$$

$$7 = 2x$$

$$\boxed{7/2 = x}$$

$$9. 3\sqrt[3]{2x-\frac{1}{2}}+3=6$$

$$3\sqrt[3]{2x-\frac{1}{2}}=3$$

$$\sqrt[3]{2x-\frac{1}{2}}=1$$

$$2x-\frac{1}{2}=1$$

$$2x = \frac{3}{2}$$

$$\boxed{x = \frac{3}{4}}$$

$$11. \sqrt{3x^2-12x+10} = 2x-5$$

$$3x^2-12x+10 = 4x^2-20x+25$$

$$0 = x^2-8x+15$$

$$0 = (x-3)(x-5)$$

$$\boxed{x=3, 5}$$

$$6. \sqrt[3]{2x-6} - 2\sqrt[3]{x-6} = 0$$

$$\sqrt[3]{2x-6} = 2\sqrt[3]{x-6}$$

$$2x-6 = 8(x-6)$$

$$2x-6 = 8x-48$$

$$42 = 6x$$

$$\boxed{7 = x}$$

$$8. \sqrt{x^2-5} = x-4$$

$$x^2-5 = x^2-8x+16$$

$$-21 = -8x$$

$$\boxed{\frac{21}{8} = x}$$

$$10. 3\sqrt{\frac{1}{2}x-5}+1=7$$

$$3\sqrt{\frac{1}{2}x-5}=6$$

$$\sqrt{\frac{1}{2}x-5}=2$$

$$\frac{1}{2}x-5=4$$

$$\frac{1}{2}x=9$$

$$\boxed{x=18}$$

$$12. \sqrt{3x+1} = \sqrt{x-5}$$

$$3x+1 = x-5$$

$$2x = -6$$

$$\boxed{x = -3}$$