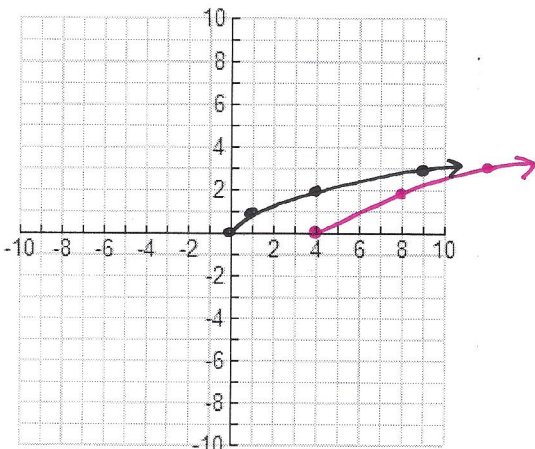


Graph each function, and identify its domain and range.

1. $f(x) = \sqrt{x-4}$

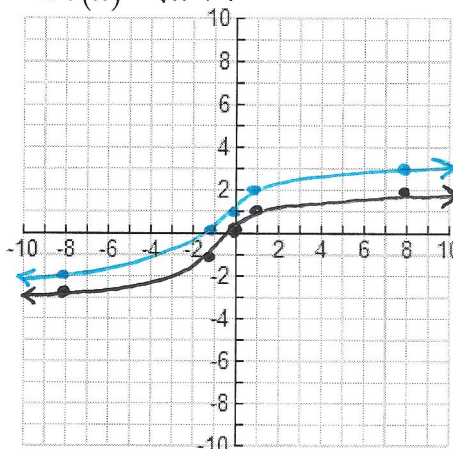
x	$f(x)$
0	0
1	1
4	2
9	3



x	4	5	8	13
$f(x)$	0	1	2	3

Domain: $x \geq 4$
Range: $y \geq 0$

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



x	$f(x)$
-8	-2
-1	-1
0	0
1	1
8	2

x	-8	-1	0	1	8
$f(x)$	-1	0	1	2	3

Domain: \mathbb{R}
Range: \mathbb{R}

Using the graph of $f(x) = \sqrt{x}$ as a guide, describe the transformation.

3. $g(x) = 4\sqrt{x+8}$ vertical stretch by 4 Horizontal Trans. left 8

4. $g(x) = -\sqrt{3x} + 2$ reflection x-axis Horizontal comp. by 1/3 Vertical Trans. up 2

Use the description to write the square root function g .

5. The parent function $f(x) = \sqrt{x}$ is reflected across the y-axis, vertically stretched by a factor of 7, and translated 3 units down.

$g(x) = 7\sqrt{-x} - 3$

6. The parent function $f(x) = \sqrt{x}$ is translated 2 units right,

compressed horizontally by a factor of 1/2, and reflected across the x-axis.

$g(x) = -\sqrt{2(x-2)}$

Solve each equation.

*Check your answers!

1. $\sqrt{x+6} = 7$

$$x+6 = 49$$

$$x = 43 \checkmark$$

2. $\sqrt{5x} = 10$

$$5x = 100$$

$$x = 20 \checkmark$$

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

$$2x+5 = 3x-1$$

$$6 = x \checkmark$$

4. $\sqrt{x+4} = 3\sqrt{x}$

$$x+4 = 9x$$

$$4 = 8x$$

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

5. $\sqrt[3]{x-6} = \sqrt[3]{3x+24}$

$$x-6 = 3x+24$$

$$-30 = 2x$$

$$-15 = x \checkmark$$

6. $3\sqrt[3]{x} = \sqrt[3]{7x+5}$

$$27x = 7x+5$$

$$20x = 5$$

$$x = \frac{1}{4} \checkmark$$

7. $\sqrt{-14x+2} = x-3$

$$-14x+2 = x^2-6x+9$$

$$0 = x^2+8x+7$$

$$0 = (x+7)(x+1)$$

$$\cancel{x = -7} \quad \cancel{x = -1}$$

No solution!

8. $(x+4)^{\frac{1}{2}} = 6$

$$x+4 = 36$$

$$x = 32 \checkmark$$

9. $4(x-3)^{\frac{1}{2}} = 8$

$$(x-3)^{\frac{1}{2}} = 2$$

$$x-3 = 4$$

$$x = 7 \checkmark$$

10. $4(x-12)^{\frac{1}{3}} = -16$

$$(x-12)^{\frac{1}{3}} = -4$$

$$x-12 = -64$$

$$x = -52 \checkmark$$