

8.6 Radical expressions & functions

- Obj: 1. Analyze graphs (domain)
2. Find inverses

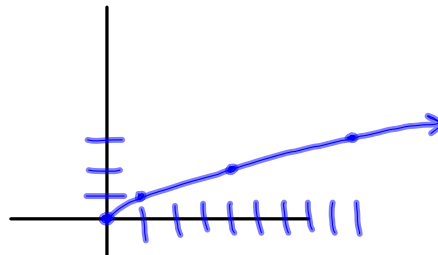
$$\sqrt{9} = 3$$

$$\therefore = 9$$

$$\sqrt{-4} = 2i \text{ imaginary}$$

$$f(x) = \sqrt{x}$$

x	y
0	0
1	1
4	2
9	3



Jan 23-8:43 AM

Find the domain: $f(x) = \sqrt{2x-5}$

$$2x-5 \geq 0$$

$$\frac{2x}{2} + 5 \quad \frac{+5}{2}$$

$$x \geq \frac{5}{2}$$

$$\left[\frac{5}{2}, \infty \right)$$

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Find the domain: $g(x) = \sqrt{5x+18}$

$$\frac{5x+18}{5} \geq 0$$

$$x \geq \frac{-18}{5}$$

$$\left[\frac{-18}{5}, \infty \right)$$

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$$f(x) = \sqrt{x}$$

Standard form:

$$y = a\sqrt{b(x-h)} + k$$

a: vertical stretch / comp.

b: horizontal str / comp

h: horiz. trans.

k: vertical trans.

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Describe the transformations:

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

refl. over x-axis

v. str. by 2

left 1

up 4

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

horiz. comp. by $\frac{1}{3}$

down 2

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Find the inverse: $y = x^2 - 2$

1. Switch x & y

$$x = y^2 - 2$$

2. Solve for y

$$\sqrt{x+2} = \sqrt{y^2}$$

$$y = \pm \sqrt{x+2}$$

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Find the inverse: $y = x^2 + 6$

$$x = y^2 + 6$$

$$\sqrt{x-6} = \sqrt{y^2}$$

$$y = \pm \sqrt{x-6}$$

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