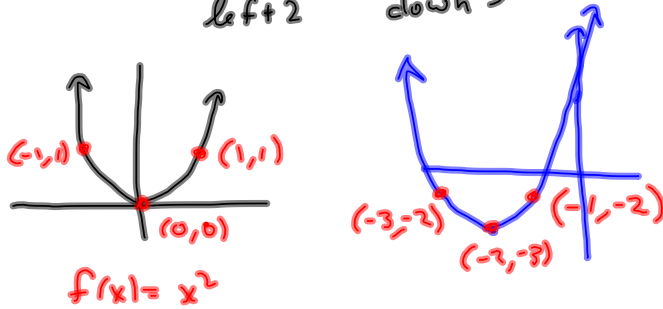


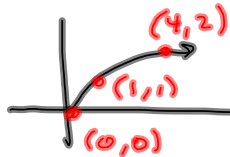
Q5

① $g(x) = (x+2)^2 - 3$
 ↑ left +2 ↓ down 3

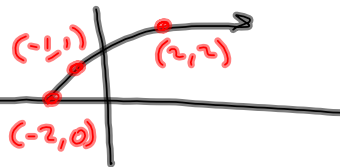


② $-\sqrt{2-x} + 5 = -\sqrt{-x+2} + 5 = g(x)$

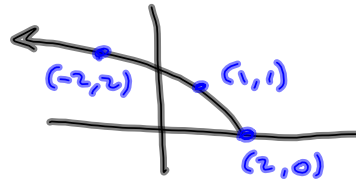
$f(x) = \sqrt{x}$



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

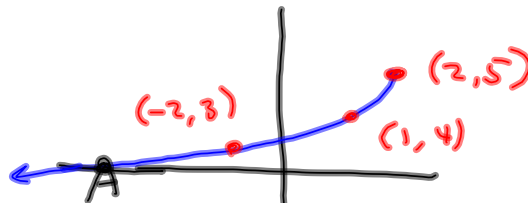
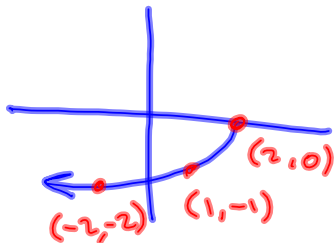


$\sqrt{-x+2} = f(-x+2)$



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

$g(x) = -f(-x+2) + 5$
 $= -\sqrt{-x+2} + 5$



Bonus: x -intercept:

$-\sqrt{-x+2} + 5 = 0$

$-\sqrt{-x+2} = -5$

$\sqrt{-x+2} = 5$

$-x + 2 = 25$

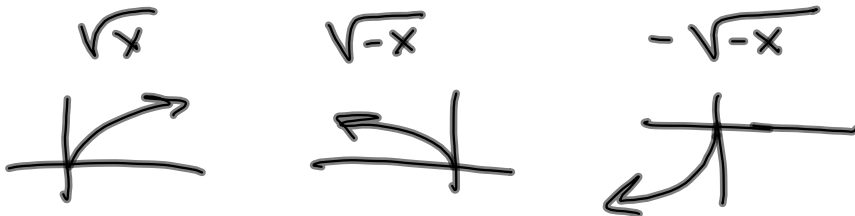
$-x = 23$

$x = -23$

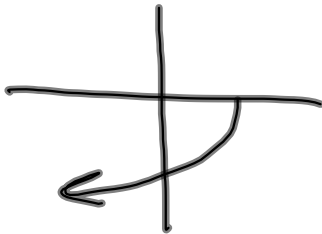
$\rightarrow (-23, 0) = A$

I prefer reflections 1st so I'd do it
this (MAT 122)

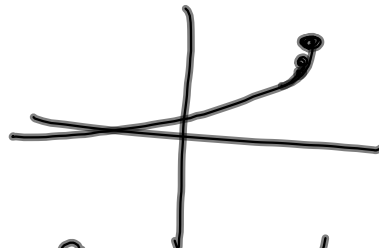
$$g(x) = -\sqrt{2-x} + 5 = -\sqrt{-(x-2)} + 5$$



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



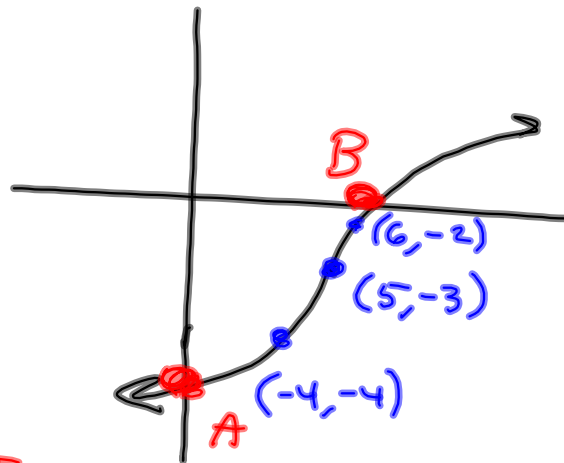
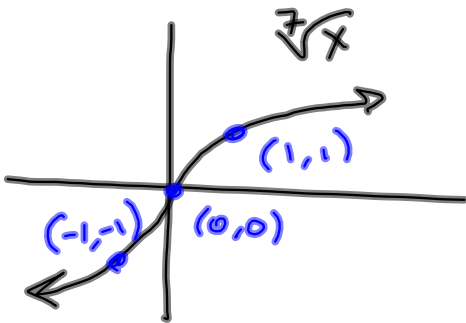
$$-\sqrt{-(x-2)} + 5$$



Compare to previous.

$$\sqrt[7]{x-5} - 3$$

Right 5, down 3



$$A: (0, \sqrt[7]{-5} - 3)$$

$$B: \sqrt[7]{x-5} - 3 \stackrel{\text{SET}}{=} 0$$

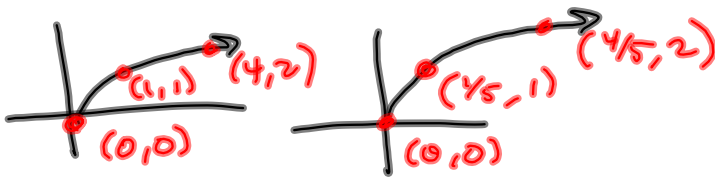
$$\sqrt[7]{x-5} = 3$$

$$x-5 = 3^7$$

$$x = 3^7 + 5 \rightarrow (3^7 + 5, 0) = B$$

$$g(x) = 2\sqrt{5x-10} = 2\sqrt{5(x-2)}$$

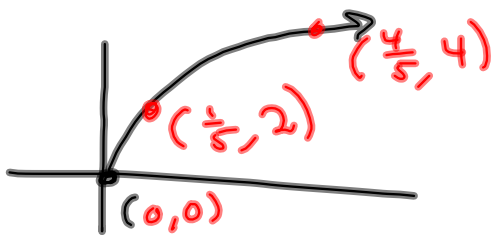
$$\sqrt{x} \rightarrow \sqrt{5x}$$



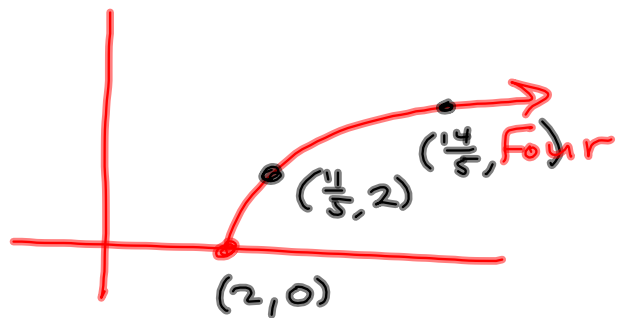
$$f(5x) : \\ (x, y) \mapsto \left(\frac{1}{5}x, y\right)$$

$$\rightarrow 2\sqrt{5x} \\ 2f(5x)$$

$$(x, y) \mapsto \left(\frac{1}{5}x, 2y\right)$$



$$\rightarrow 2\sqrt{5(x-2)}$$



$$\frac{1}{5} + 2 = \frac{1+10}{5} = \frac{11}{5}$$

$$\frac{4}{5} + 2 = \frac{4+10}{5} = \frac{14}{5}$$

\sqrt{x} gets to $y=1$ when $x=1$
 $\sqrt{5x}$ $y=1$ when $5x=1$
 $\sqrt{5\left(\frac{1}{5}\right)} = \sqrt{1}$