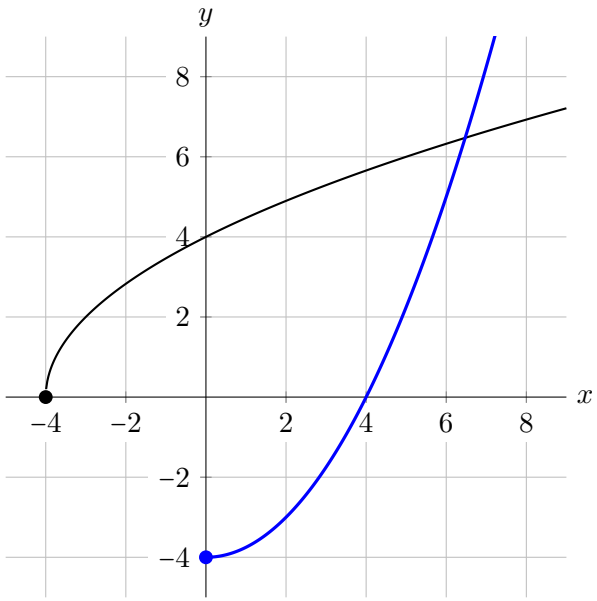
3. [5 points] Consider the function

$$g(x) = 2\sqrt{x+4}.$$

a. [2 points] A graph of $g(x)$ is shown below. On the same set of axes, sketch a graph of $g^{-1}(x)$. Be sure your graph is clear and unambiguous, and that you have carefully plotted any important points.



b. [3 points] Find a formula for $x = g^{-1}(y)$. Show your work.

Solution: We solve $y = 2\sqrt{x+4}$ for x to find

$$\frac{y}{2} = \sqrt{x+4}$$

$$\frac{y^2}{4} = x + 4$$

$$\frac{y^2}{4} - 4 = x$$

Answer: $g^{-1}(y) =$ $\frac{y^2}{4} - 4$