Graph Square Root Functions

The graph of the parent square root function $f(x) = \sqrt{x}$ can be transformed to graph any square root function g. You can use two forms of g. In the form $g(x) = a\sqrt{x - h} + k$, the points $(0, 0)$ and $(1, 1)$ are mapped to (h, k) and $(h + 1, k + a)$, respectively. In the form $g(x) = \sqrt{\frac{1}{b}(x - h)} + k$, the points $(0, 0)$ and $(1, 1)$ are mapped to (h, k) and $(h + b, k + 1)$, respectively.

Complete the steps to sketch the graph of the function $g(x) = \frac{1}{2}\sqrt{x - 3} - 2$.

Rewrite the function g.	In the form $g(x) = a\sqrt{x - h} + k$: $g(x) = \boxed{}\sqrt{x - \boxed{}} + \boxed{}$	In the form $g(x) = \sqrt{\frac{1}{b}(x - h)} + k$: $g(x) = \sqrt{\boxed{}\left(x - \boxed{}\right)} + \boxed{}$
Identify the values of the parameters.	$a = \dfrac{1}{\boxed{}}, h = \boxed{}, k = \boxed{}$	$b = \boxed{}, h = \boxed{}, k = \boxed{}$
Map the points (0, 0) and (1, 1) from the graph of f to the graph of g.	$(0, 0) \to (3, -2)$ $(1, 1) \to \left(3 + \boxed{}, -2 + \boxed{}\right)$ $= \left(\boxed{}, \boxed{}\right)$	$(0, 0) \to (3, -2)$ $(1, 1) \to \left(3 + \boxed{}, -2 + \boxed{}\right)$ $= \left(\boxed{}, \boxed{}\right)$
Find two more points.	$g(7) = \frac{1}{2}\sqrt{7 - 3} - 2 = \boxed{}$, $g(12) = \frac{1}{2}\sqrt{12 - 3} - 2 = \boxed{}$	$g(4) = \frac{1}{2}\sqrt{4 - 3} - 2 = \boxed{}$, $g(12) = \frac{1}{2}\sqrt{12 - 3} - 2 = \boxed{}$
Sketch the graph.	Use the above points. Draw a smooth curve through the points.	

1. Sketch the graph of $g(x) = 2\sqrt{x + 4} + 5$. Show your work.

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