Name_____ Hour _____ Date_____

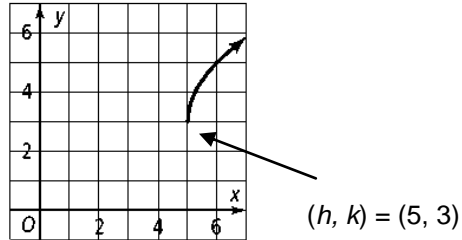## 6-8 Notes
Graphing Radical Functions

The graph of $y = a\sqrt{x-h} + k$ is a translation h units horizontally (*opposite*) and k units vertically of $y = a\sqrt{x}$. The value of a determines a vertical stretch or compression of $y = \sqrt{x}$, and whether the graph is the top or bottom of a sideways U-shape.

Problem

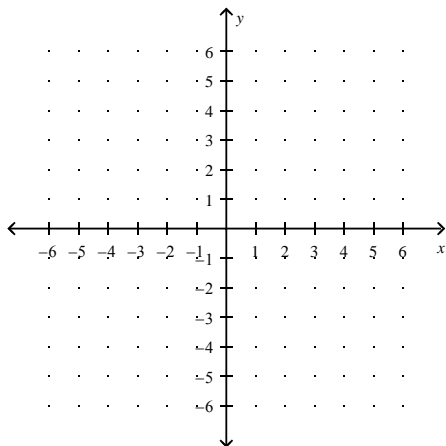What is the graph of $y = 2\sqrt{x-5} + 3$?

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

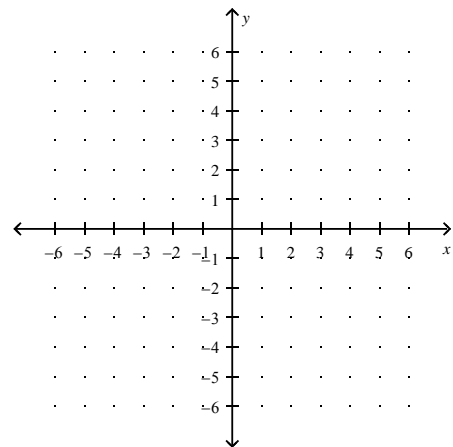$a = 2 \quad h = 5 \quad k = 3$

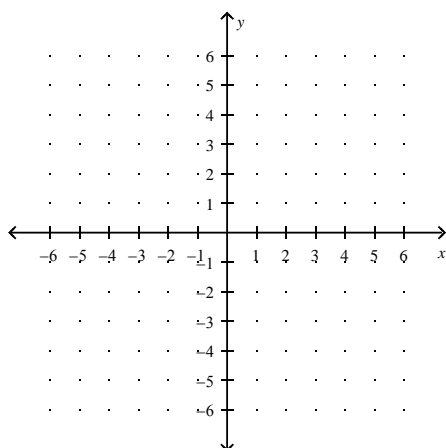$(h, k) = (5, 3)$

Exercises

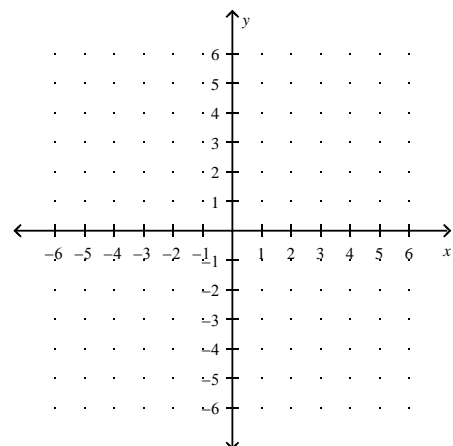**Graph each function.**
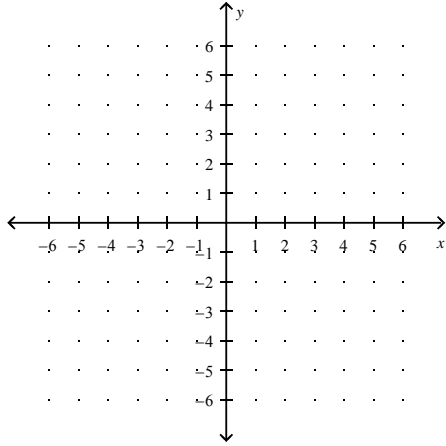
1. $y = \sqrt{x-4} + 1$

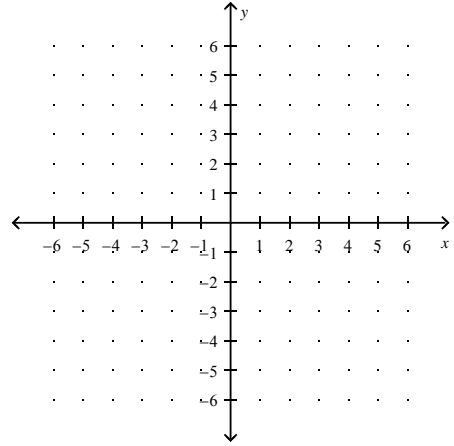**2.** $y = \sqrt{x} - 4$
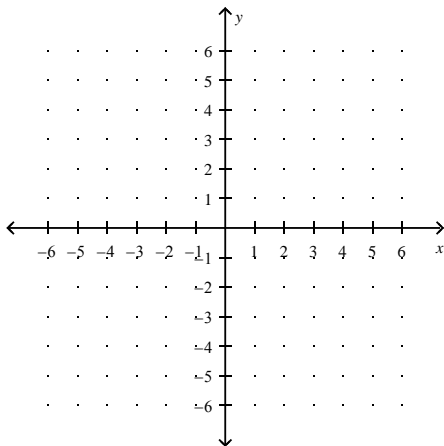
3. $y = \sqrt{x+1}$

4. $y = -\sqrt{x+2} - 3$

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

6. $y = -2\sqrt{x+3} + 4$

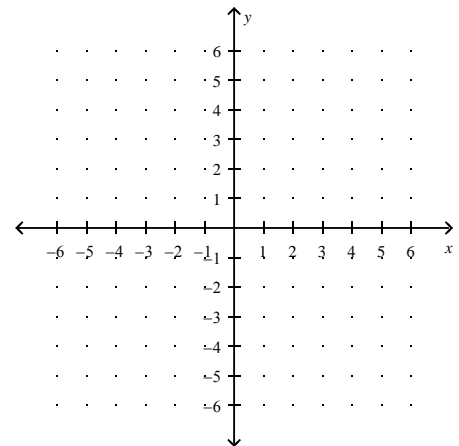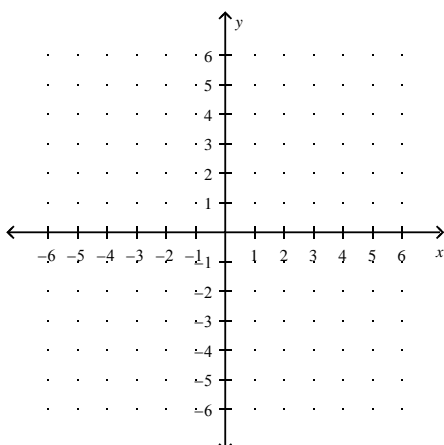**7.** $y = -\sqrt{x-1}$

8. $y = \sqrt{x+3} - 4$

9. $y = 3\sqrt{x} + 2$

10. $y = -\sqrt{x-2}$