

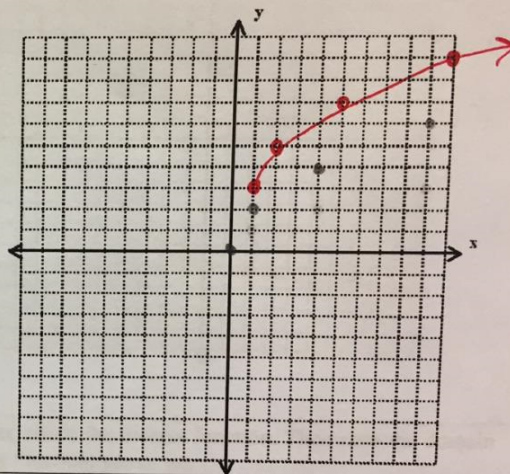
Formative Assessment C.4 – Graphing Radicals and Inverses --- NO GRAPHING CALCULATOR

1. **Level 1:** Graph this radical function. *You must have at least 4 discrete points on the graph!* Then in words describe the transformation of the function from the parent function.

$$f(x) = 2\sqrt{x-1} + 3$$

Transformation description: Stretch by 2,
~~Shift~~ 1, up 3.
Right

Domain: $x \geq 1$ Range: $y \geq 3$



2. **Level 1:** Find the inverse $f^{-1}(x)$ of the following function. Is the inverse a function?

$$f(x) = 2x - 8$$

$$x = 2y - 8$$

$$x - 8 = 2y$$

Inverse: $f^{-1}(x) = \frac{1}{2}x - 4$

Is the inverse a function? **YES** / NO (circle one)

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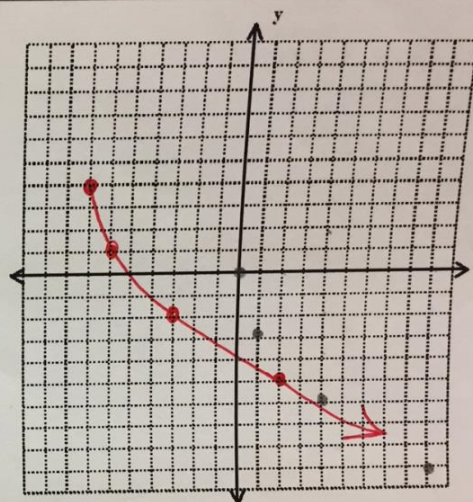
3. **Level 2:** Graph this radical function. *You must have at least 4 discrete points on the graph!* Then in words describe the transformation of the function from the parent function and state the domain and range.

$$f(x) = -3\sqrt{x+7} + 4$$

Transformation description: Stretch by 3,
Reflect over x-axis,
left 7 and up 4.

Domain: $x \geq -7$

Range: $y \leq 4$



4. **Level 2:** Find the inverse $f^{-1}(x)$ of the following function. Is the inverse a function?

$$f(x) = \sqrt{x-4}$$

$$x = \sqrt{y-4}, \quad x^2 = y-4, \quad x^2 + 4 = y$$

Inverse: $f^{-1}(x) = x^2 + 4$

Is the inverse a function? **YES** / NO (circle one)

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5. **Level 3:** Graph this radical function. You must have at least 4 discrete points on the graph! Then in words describe the transformation of the function from the parent function and state the domain and range.

$$f(x) = -\frac{1}{2}\sqrt{x+2} - 5$$

Transformation description: Shrink by 1/2, Reflect over x-axis, left 2, and down 5.

Domain: $x \geq -2$
 Range: $y \leq -5$

6. **Level 3:** Given a function, state the domain and range. Next, create the inverse function. Then state the domain and range of the inverse and decide whether the inverse is a function, yes or no.

$$f(x) = (x+5)^2 - 3$$

Domain: All IR Range: $y \geq -3$

Inverse: $f^{-1}(x) = \underline{\pm\sqrt{x+3} - 5}$

Domain: $x \geq -3$ Range: All IR

Inverse a Function? YES / NO (circle one)

$$x = (y+5)^2 - 3$$

$$x+3 = (y+5)^2$$

$$\pm\sqrt{x+3} = y+5$$

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

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7. **Level 4:** Given a function, state the domain and range. Next, create the inverse function. Then state the domain and range of the inverse and decide whether the inverse is a function, yes or no.

$$f(x) = \frac{6}{\sqrt{x}} + 1$$

Domain: $x > 0$ Range: $y > 1$

Inverse: $f^{-1}(x) = \underline{\left(\frac{6}{x-1}\right)^2}$

Domain: $x > 1$ Range: $y > 0$

Inverse a Function? YES / NO (circle one)

$$x = \frac{6}{\sqrt{xy}} + 1$$

$$x-1 = \frac{6}{\sqrt{xy}}$$

$$\sqrt{y}(x-1) = 6$$

$$\sqrt{y} = \frac{6}{x-1}$$

$$y = \left(\frac{6}{x-1}\right)^2$$

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