

Warm Up:

Think of any questions you may have from the second half of this chapter.

8-6: Radical Expressions

All radical expressions simplify the same way. Even with a root symbol you can combine or divide things up.

Simplify: $\sqrt[4]{16x^8}$.

$$\begin{array}{l}
 (4) \quad 16 \quad \sqrt[4]{16} \cdot \sqrt[4]{x^8} \\
 2x^2 \\
 2x^2
 \end{array}$$

To change a rational exponent to a root remember the numerator is the power and the root is the denominator.

Write $x^{4/3}$ and $x^{7/4}$ in radical form.

$$\sqrt[3]{x^4}$$

$$\sqrt[4]{x^7}$$

Remember to always simplify if you can!

You can also write radical form in rational exponent form. Try a few examples:

$$(\sqrt[4]{81})^3$$

$$81^{3/4}$$

$$81^{(3/4)}$$

$$27$$

$$\sqrt[3]{10^9}$$

$$10^{9/3}$$

$$10^3$$

$$1000$$

8-7: Transforming radical functions

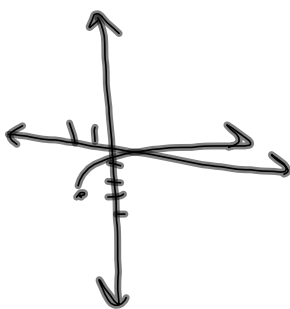
All the transformation rules apply to radical functions as well. They are exactly the same.

Write the square root function after moving it 3 units right and vertically stretching it by a factor of 2.

$$2(\sqrt{x-3})$$

You also may have to find the domain and range. Use the graph to help you. Remember you can't take the square root of a negative number.

Find domain and range of $\sqrt{x+2} - 4$



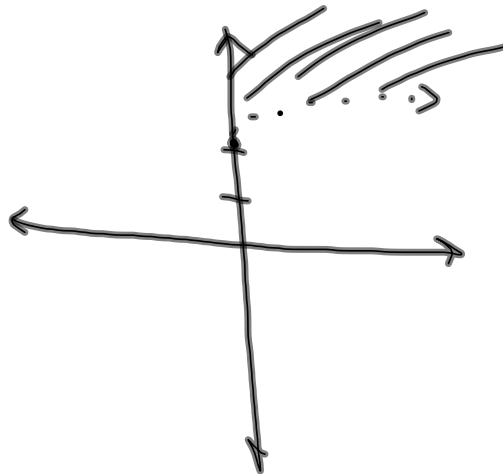
left 2
↓ 4

$$D: x \geq -2$$

$$R: y \geq -4$$

Graphing inequalities works the same as well. Determine a solid or dashed line and shade. Don't go past the edge of a function with an even root!

Graph $y > \sqrt{x+2}$



8-8: Solving radical equations

- 1) isolate the radical symbol
- 2) raise both sides by the index of the radical
- 3) solve for the variable
- 4) check to be sure you don't have an extraneous solution

$$\begin{array}{r} 4 + \sqrt{x-1} = 5 \\ -4 \quad \quad -4 \end{array}$$

$$\sqrt{x-1}^2 = 1^2$$

$$x-1=1$$

$$x=2$$

$$\begin{array}{r} \sqrt{x-3} + 2 \leq 5. \\ \quad \quad -2 \quad -2 \end{array}$$

$$\sqrt{x-3}^2 \leq 3^2$$

$$x-3 \leq 9$$

$$3 \leq x \leq 12$$

Any questions or problems you would like to try before the quiz?

When finished start on your review assignment. You will have time tomorrow to work on it and it will be collected on Friday for points.

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