

Guiding Question: Can I apply my knowledge of radicals to solve radical and rational equations?

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Exponential Form	Radical Form	Simplified Result
$8^{\frac{2}{3}}$	$\sqrt[3]{8^2}$	4
$216^{\frac{2}{3}}$	$\sqrt[3]{216^2}$	36
$16^{\frac{1}{4}}$	$\sqrt[4]{16}$	2
$4^{\frac{3}{2}}$	$\sqrt{4^3}$	8
$64^{-\frac{2}{3}}$	$\sqrt[3]{64^2}$	16
$22^{\frac{1}{5}}$	$\sqrt[5]{22^6}$	1

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Homework:

What questions do you have?

1. GET THE RADICAL BY ITSELF BY ADDING/SUBTRACTING CONSTANTS AND DIVIDING BY COEFFICIENTS
2. UNDO THE RADICAL BY RAISING EACH SIDE TO THE POWER (USE INDEX # - or inverse of fraction\*)
3. COMPLETE SOLVING

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Examples: Solve the rational equations  $\frac{4}{3} \cdot \frac{3}{4} = 1$

1)  $\text{[blacked out]} + 2 = 5$   
 $\quad \quad \quad -2 \quad -2$   


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 $(\sqrt{4x-7})^2 = (3)^2$   
 $(4x-7)^{1/2 \cdot 2} = 3^2$   
 $4x-7 = 9$   
 $\quad \quad \quad +7 \quad +7$   


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 $x = 4$   

x=4

2)  $3 \text{ [blacked out]} = 243$   
 $\quad \quad \quad \frac{3}{3} = \frac{243}{3}$   
 $(x)^{3/4} = (81)^{3/4}$   
 $x = 27$

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3.  $5 \text{ [blacked out]} + 8 = 48$   
 $\quad \quad \quad -8 \quad -8$   


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 $5x^{3/4} = 40$   
 $\quad \quad \quad \frac{5}{5} = \frac{40}{5}$   
 $(x^{3/4})^{4/3} = (8)^{4/3}$   
 $x = 16$

4)

$$\begin{array}{r}
 \text{[redacted]} + 6 = 11 \\
 -6 \quad -6 \\
 \hline
 (X^{1/4})^{4/1} = (5)^{4/1} \\
 X = 625
 \end{array}$$

5)

$$\begin{array}{r}
 \text{[redacted]} + 4 = 10 \\
 -4 \quad -4 \\
 \hline
 ((4x - 8) = (6)^2) \\
 4x - 8 = 36 \\
 +8 \quad +8 \\
 \hline
 4x = 44 \\
 X = 11
 \end{array}$$

6.

$$\begin{array}{r}
 2 \text{[redacted]} - 3 = 125 \\
 +3 \quad +3 \\
 \hline
 2(X+12)^{3/2} = 128 \\
 \frac{2}{2} \quad \frac{128}{2} \\
 ((X+12) = (16)^{2/3}) \\
 X+12 = 16 \\
 -12 \quad -12 \\
 \hline
 X = 4
 \end{array}$$

Closer:

$$-3 + (8 - 2x)^{\frac{5}{4}} = 29$$