how can I solve

equations with **radical** expressions and expressions with rational exponents.

Jun 10-9:15 AM

Algebra...

*Isolate the radical!!

$\sqrt{x-3}+5=8$

$-5\ \ -5$

$\sqrt{x-3}=3$

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

$x-3=9$

$x=12$

$\sqrt{12-3}=3$

$\sqrt{9}=3$

$3=3$

$\sqrt{12-3}+5=8$

$3+5=8$

$8=8$

$\sqrt{x-3}=3$

$((x-3)^{\frac{1}{2}})^2=(3)^2$

$x-3=9$

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$2\sqrt[3]{x}+4=8$

$2\sqrt[3]{8}+4=8$

$8+4=8$

$2\sqrt[3]{x}=4$

$\frac{2}{2}\sqrt[3]{x}=\frac{4}{2}$

$(\sqrt[3]{x})^3=(2)^3$

$x=8$

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Algebra...

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

$x+3=4$

$-3\ \ -3$

$x=1$

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Extraneous Solutions:

When you plug them back in, they don't work!!

*Always have to check!!

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Solving Radical Equations

$(\sqrt{2x+8})^2=(x)^2$

$2x+8=x^2$

$-2x-8$

$0=x^2-2x-8$

$0=x^2-2x-8$

$(x+2)(x-4)$

$x=-2 \quad x=4$

$\sqrt{2x+8}=x$

$\sqrt{2(-2)+8}=-2$

$\sqrt{4}=-2$

$\sqrt{2(4)+8}=4$

$\sqrt{16}=4$

$4=4$

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Solving Radical Equations

$$\sqrt{7x-12} = x$$

$7x - 12 = x^2$

$0 = x^2 - 7x + 12$

$(x-4)(x-3)$

$x = 4 \quad x = 3$

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Algebra...

$$\sqrt[3]{x+5} = 1$$

Check:

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Solving Radical Equations

$$\left(\sqrt[3]{3x+5}\right)^3 = \left(\sqrt[3]{2x+1}\right)^3$$

$3x + 5 = 2x + 1$

$-2x \quad -2x$

$x + 5 = 1$

$x = -4$

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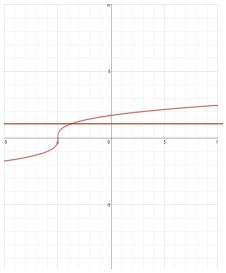
Graphing

$$\sqrt[3]{x+5} = 1$$



Solution?

In Calculator:

$$y_1 = \sqrt[3]{x+1}$$

$$y_2 = 1$$

Jan 24-2:14 PM

Graphing

$$\sqrt{x-4} = 2$$

In Calculator:

Solution?

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$$\sqrt{2x-1} = \sqrt{x+4}$$

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Solving Radical Equations

$$\sqrt[3]{2x-1} = \sqrt[3]{4x-5}$$

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$$\sqrt{2x+3} = x$$

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Solving Radical Equations

$$\sqrt{5x+10} = x+2$$

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