You will need

- Calculator
- White Practice Sheet from yesterday.

Let's talk about... On front:

12)
$$\sqrt{5x-1} + 8 = 2$$

 $-8 - 8$
 $\sqrt{.5x-(} = -6$
 0.50

On back:
$$(22)(\sqrt{x+2})^{2} = (x+2)^{2}$$

(x+5)(x+5)

$$(X+2)(X+2)$$

$$\frac{x+2=x^2+4x+4}{-x-2}$$

$$0=x^2+3x+2$$

$$(x + 1)(x + 2) = 0$$

$$(5)(x+5)^{2} = (x + 5)^{2} \qquad x = -1$$

$$(x + 1)(x + 2) = 0$$

$$(x + 13)^{2} = (x + 5)^{2} \qquad x = -2$$

$$3x + 13 = x^{2} + 10x + 25$$

 $-3x - 13$ $-3x - 13$

$$0 = x^{2} + 7x + 12$$

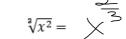
$$0 = (x + 4)(x + 3)$$

$$x = -4 - 3$$

Solving Equations with Rational Exponents

Remember that radical expressions can be represented with rational/fractional exponents (and vice versa).

Examples: $\sqrt{x} = x^{-\frac{1}{2}}$



Now we will work on solving equations containing fractional exponents within them.

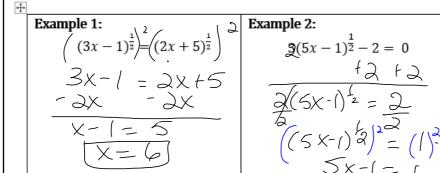
- 1) Isolate the power
- 2) Raise both sides to the reciprocal power to cancel.
- 3) Solve
- 4) Check your answer

Reviewing reciprocals is necessary before we start. If one side of the equation is raised to a certain fractional power, raising both sides to the reciprocal power will 'unlock' that side.

Examples:

$$\frac{1}{2}$$
 reciprocal $\rightarrow 2$ $\frac{2}{3}$ reciprocal $\rightarrow 3$ $\frac{4}{3}$ reciprocal $\rightarrow 5$

$$\frac{4}{3}$$
 reciprocal $\rightarrow \frac{2}{4}$



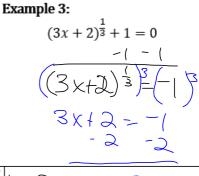
$$3(5x-1)^{\frac{1}{2}}-2=0$$

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

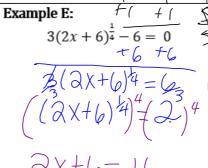
$$(5x-1)^{\frac{1}{2}}=2$$

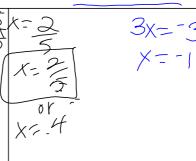
$$(5x-1)^{\frac{1}{2}}=(1)$$

$$5x-1=5$$



Example D: $(3x+1)^{\frac{1}{2}} = -5$





Almost got it! But here are some problems where the fractional power does not have a numerator of 1.

Use the <u>(PCIDIDCastill.</u>

 $\sqrt[3]{8^5} = \sqrt{3}$

 $\sqrt[2]{9^3} = \bigcirc_{\frac{3}{2}}^{\frac{3}{2}}$

Example F:

$$4x^{\frac{3}{2}} - 8 = 0$$

$$-18 + 6$$

$$\frac{\cancel{3}}{\cancel{2}} = 8$$

$$\cancel{4} \times \cancel{3} = \cancel{4}$$

$$\cancel{3} \times \cancel{3} = \cancel{3}$$

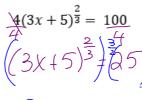
$$\cancel{4} \times \cancel{3} = \cancel{3}$$

$$\cancel{5} \times \cancel{5} = \cancel{5} \times \cancel{5}$$

Example G:

$$(x-1)^{\frac{2}{3}} + 64$$

Example H:



125

Example I:

$$\frac{3(x+2)^{\frac{3}{4}}=24}{(x+2)^{\frac{3}{4}}=8}$$

64

-2 (X=

