What do you want to be when you

"grow up"  $\Rightarrow$  attendance
question

12.6 Day 1

Solve
_____

1. linear
2. absolute values
3. Polynomials $(=0)$
4. Rationals
5. Radicals

Things cant do
in Math
_____

1. divide by zero
2. $|x| \neq -\#$
3. $\sqrt[2]{x^2} = |x|$
   Because even $\sqrt{x} \neq \#$

$$\sqrt{x}^2 = 5^2$$

$$x = 25$$

$$\left(\sqrt{x} + 2\right)^2 = (9)^2$$

$$\to \sqrt{x} + 2 = 9$$

$$\sqrt{x}^2 = 7^2$$

$$x = 49$$

① Isolate the $\sqrt{\phantom{x}}$

② Square both sides

③ finish solving

Solve

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

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

$$x \neq 9$$

solve

Solve

$$\sqrt{x+2} + 5 = 9$$

$$\phantom{\sqrt{x+2}} z \quad -5 \qquad -5$$

$$\left(\sqrt{x+2}\right)^2 = (4)^2 \longleftarrow$$

$$x + 2 = 16$$

$$x = 14$$

Solve

$$\sqrt{3x+1} + 5 = 12$$

$$\left(\sqrt[2]{3x+1}\right)^2 = \left(7\right)^2$$

$$3x + 1 = 49$$

$$3x = 48$$

$$\boxed{x = 16}$$

Solve

$$(x)^2 = \left(\sqrt{7x+8}\right)^2 \rightarrow \sqrt{7x+8} = \boxed{x}$$

$$x^2 = 7x + 8$$

$$x^2 - 7x - 8 = 0$$

$$(x + 1)(x - 8) = 0$$

$$x \neq -1 \qquad \boxed{x = 8}$$

Solve

$$X = \sqrt{2X-2} + 1$$

$$(X-1)^2 = \left(\sqrt[2]{2X-2}\right)^2 \quad \text{Check}$$

$$X^2 - 2X + 1 = 2X - 2$$

$$X^2 - 4X + 3 = 0$$

$$(X-1)(X-3) = 0$$

$$X = 1, \ X = 3$$

Solve

$$\sqrt{2x+1} + 7 = x$$

$$\left(\sqrt{2x+1}\right)^2 = (x-7)(x-7)$$

$$2x+1 = x^2 - 14x + 49$$

$$0 = x^2 - 16x + 48$$

check

$$\sqrt{2x+1} = \boxed{x-7}$$

$$0 = (x-12)(x-4)$$

$$x = 12 \qquad x \neq 4$$

12.6

D1