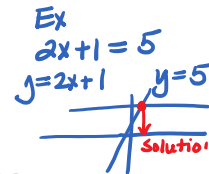## Solving Flashback #2

1. What does it mean to solve graphically?  Use an example to illustrate

Graph the left side of equation and then the right side as a separate line or curve. Where they intersect is the solution.

Ex
$2x+1=5$
$y=2x+1$   $y=5$

Solution

2. How do you verify solutions to an equation?  Why do you want to do this?

Take the values you found for your solution and substitute into the equation one at a time to ensure the $^{value\ of}$left side = $^{value\ of\ the}$right side. If not, it may indicate an <u>error</u> in your solving or an extraneous root.

3. Solve and verify:

$4x - 2(3x - 8) = 7$

$4x - 6x + 16 = 7$
$-2x = -9$
$x = \dfrac{-9}{-2}$
$x = \dfrac{9}{2}$

$|5x - 2| = 10$

$5x - 2 = 10$
$5x = 12$
$x = \dfrac{12}{5}$

$-(5x - 2) = 10$
$-5x + 2 = 10$
$-5x = 8$
$x = \dfrac{-8}{5}$

$16x^2 - 9 = 0$   or factor

$16x^2 = 9$
$x^2 = \dfrac{9}{16}$
$x = \pm \dfrac{3}{4}$

$(4x-3)(4x+3) = 0$
$4x-3=0$   $4x+3=0$
$4x=3$   $4x=-3$
$x = \dfrac{3}{4}$   $x = \dfrac{-3}{4}$

$x^2 - 16 = -40$

$\sqrt{x^2} = \sqrt{-24}$

No Solution

(because you can't $\sqrt{\phantom{x}}$ a negative number)

$(x)^2 = (\sqrt{5x-4})^2$

$x^2 = 5x - 4$
$x^2 - 5x + 4 = 0$
$(x - 4)(x - 1) = 0$
$x = 4$   $x = 1$

$2 = |x^2 - 2x - 1|$

$2 = x^2 - 2x - 1$
$0 = x^2 - 2x - 3$
$0 = (x - 3)(x + 1)$
$x = 3, -1$

$2 = -(x^2 - 2x - 1)$
$2 = -x^2 + 2x + 1$
$x^2 - 2x + 1 = 0$
$(x - 1)(x - 1) = 0$
$\underline{x = 1}$

4. What is the value of the discriminant?  What does it tell us about the quadratic?

$b^2 - 4ac$

$x^2 + 4x - 12 = 0$

$a = 1$
$b = 4$
$c = -12$

$b^2 - 4ac$
$16 - 4(1)(-12)$
$16 + 48$
$64$

two real roots (equal)

→ So in ch 8 the reciprocal function would have 1 asymptote

$3x^2 + 5x + 11 = 0$

$a = 3$
$b = 5$
$c = 11$

$b^2 - 4ac$
$25 - 4(3)(11)$
$25 - 132$
$-107$

No roots → So in chapter 8 there would be <u>no</u> vertical asymptotes It would be the "pimple" graph