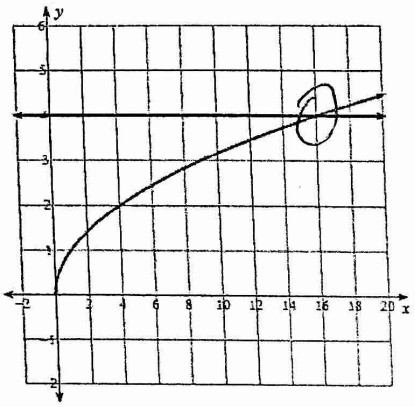
LT 7.3 I can solve equations with radical expressions and expressions with rational exponents.

7.3 Practice A: Solving radical equations and equations with radical exponents

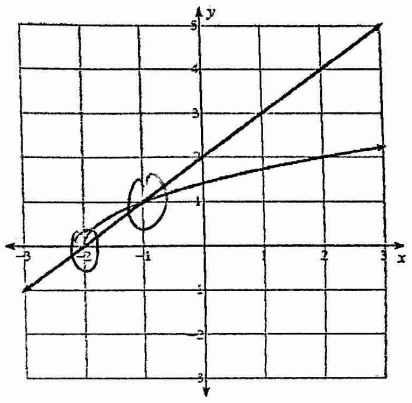
1. Find the solution and Explain how to use this graph to solve each equation.

a) $4 = \sqrt{x}$



$X = 16$

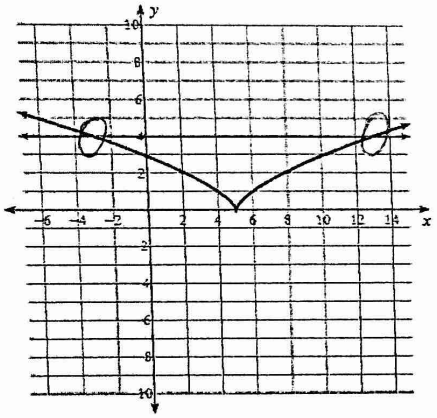
b) $(x+2)^{\frac{1}{2}} = x + 2$



$X = -2$

$X = -1$

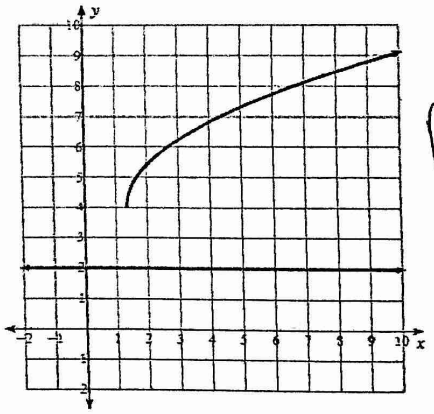
c) $(x-5)^{\frac{2}{3}} = 4$



$X = -3$

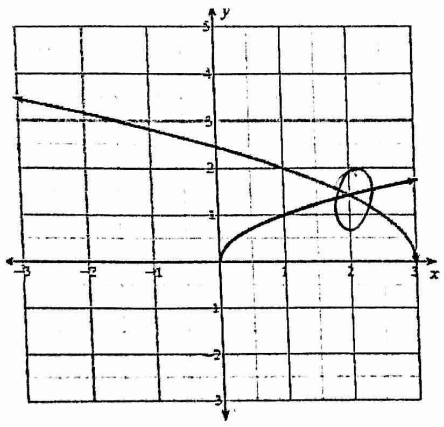
$X = -13$

d) $\sqrt{3x-4} + 4 = 2$



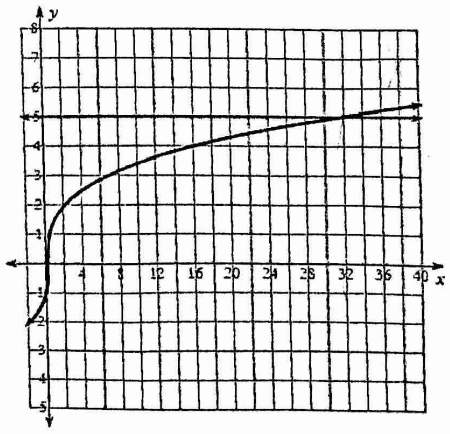
No Solution

e) $\sqrt{x} = \sqrt{6-2x}$



$X = 2$

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



$X = 32$

LT 7.3 I can solve equations with radical expressions and expressions with rational exponents.

2. Use the graphing calculator or algebra to find the solution to each equation.

a. $(\sqrt{x})^2 = (\sqrt{2x-6})^2$

$x = 2x - 6$

$-2x \quad -2x$

$-x = -6$

$x = 6$

b. $(216)^{\frac{2}{3}} = ((18x)^{\frac{3}{2}})^{\frac{2}{3}}$

$\frac{36}{18} = \frac{18x}{18}$

$2 = x$

c. $(x)^2 = (\sqrt{7x-5})^2$

$x^2 = 7x - 5$

$x^2 - 7x + 5$

$a = 1 \quad x = \frac{7 \pm \sqrt{7^2 - 4(1)5}}{2(1)}$

$b = -7$

$c = 5 \quad x = \frac{7 \pm \sqrt{29}}{2}$

d. $(\sqrt{3x-7})^2 = (\sqrt{x-2})^2$

$3x - 7 = x - 2$

$+7 \quad +7$

$3x = x + 5$

$-x \quad -x$

$2x = 5$

$x = 2.5$

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

$x^2 = 2 - x$

$x^2 + x - 2 = 0$

$(x+2)(x-1)$

$x = -2 \quad x = 1$

Extraneous

f. $((5+2x)^{\frac{2}{3}})^{\frac{3}{2}} = (9)^{\frac{3}{2}}$

$5 + 2x = 27$

$-5 \quad -5$

$\frac{2x}{2} = \frac{22}{2}$

$x = 11$

g. $(\frac{1}{2}x)^2 = (\sqrt{5x-9})^2$

$\frac{1}{4}x^2 = 5x - 9$

$x = 2$

$\frac{1}{4}x^2 - 5x + 9$

$5 \pm \sqrt{(-5)^2 - 4(\frac{1}{4})(9)}$ / $2(\frac{1}{4})$

$5 \pm \sqrt{25 - 9}$

$5 \pm \sqrt{16}$

5 ± 4 / $\frac{1}{2}$

$\frac{9}{\frac{1}{2}} \quad \frac{1}{\frac{1}{2}}$

$18 \quad 2$

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

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

$x + 2 = 1$

$x = -1$

No solution

i. $(\sqrt[3]{12+x})^3 = (-3)^3$

$12 + x = -27$

$-12 \quad -12$

$x = -39$