10.2 Solving Equations By Using Square Roots.

Much like we've solved equations in the past, now we have one more operation to worry about... Square roots.

We must just remember one thing PEMDAS backward !!

Also, the square root of a positive number yields 2 results; a positive and negative written as $\pm$

Examples: $x^2 = 25$ $\quad x = \pm 5$

$x^2 = 10$ $\quad x = \pm\sqrt{10}$

$x^2 = \frac{9}{4}$ $\quad x = \pm \frac{3}{2}$

$-16t^2 + 185 = 0$
$-16t^2 = -185$
$t^2 = \frac{185}{16}$
$t = \pm\sqrt{\frac{185}{16}} = \pm\frac{\sqrt{185}}{4}$

$(x-2)^2 - 9 = 0$
$(x-2)^2 = 9$
$x - 2 = \pm 3$
$x = 5$ or $x = -1$

$25t^2 - 144 = 0$
$25t^2 = 144$
$t^2 = \frac{144}{25}$
$t = \pm\frac{12}{5}$

$(x-4)^2 - 81 = 0$
$(x-4)^2 = 81$
$x - 4 = \pm 9$
$x = 13$ or -5

Practice 10.2
C.W. 1-24 E
HW. Pg 490 14-48 E.

10.3 Completing the Square

C.W. 29, 31, 33
Pg 502
HW. Pg 502 ~~30-44~~ E

The purpose is to make a P.S.T

$ax^2 + bx + c = 0$

1. Move constant $\quad ax^2 + bx = -c$
2. Take ½ of b, then square it. $\quad ax^2 + bx + b^2/4 = c - b^2/4$
3. Add to both sides
4. You made a P.S.T.
   a. Factor as P.S.T.
5. Solve.

Ex: ~~$x^2 - 8$~~ ~~$x^2 - x = 2$~~

$x^2 - 10x + 21 = 0$
$x^2 - 10x = -21$
$x^2 - 10x + 25 = -21 + 25$
$(x-5)^2 = 4$ $\quad x - 5 = \pm 2$ $\quad x = 7$ or $x = 3$