Algebra II

7-1

Completing the Square

General Form of the Quadratic - $y = ax^2 + bx + c$

Most Basic Quadratic Equation - $y = x^2$

Solve. (pg 309)

1a) $x^2 = 3$

$\sqrt{x^2} = \sqrt{3}$

$|x| = \sqrt{3}$

$x = \pm\sqrt{3}$

$\{\pm\sqrt{3}\}$

1b) $\sqrt{(x-1)^2} = \sqrt{3}$

$|x-1| = \sqrt{3}$

$x - 1 = \pm\sqrt{3}$

$x = 1 \pm \sqrt{3}$

$\{1 \pm \sqrt{3}\}$

1c) $\sqrt{(2x-1)^2} = \sqrt{3}$

$|2x-1| = \sqrt{3}$

$2x - 1 = \pm\sqrt{3}$

$\frac{2x}{2} = \frac{1 \pm \sqrt{3}}{2}$

$x = \frac{1 \pm \sqrt{3}}{2}$

$\left\{\frac{1 \pm \sqrt{3}}{2}\right\}$

13) $x^2 - 2x - 5 = 0$

$(x+\ \ )(x-\ \ )=0$

prime

$x^2-2x=5$

$x(x-2)=5$

Stuck

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

$|x|=\sqrt{2x-5}$

OOF

Solve.

13) $x^2 - 2x - 5 = 0$

$(x^2-2x\ \ )-5=0$

already is! Yay!

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

$(x^2-2x+1)-6=0$

$(x-1)(x-1)-6=0$

$\sqrt{(x-1)^2}=\sqrt{6}$

$|x-1|=\sqrt{6}$

$x-1=\pm\sqrt{6}$

Completing the Square

$ax^2 + bx + c = 0$

1) Isolate c.

2) Get $a = 1$.

3) Take b, half it, square it,

-2 , -1 , $(-1)^2 = 1$

and apply to equation.

4) Solve.

$\{1\pm\sqrt{6}\}$

Solve.

27) $2t^2 + 4t + 1 = 0$

	Completing the Square $ax^2 + bx + c = 0$
$(2t^2+4t\ \ )+1\ \ =0$	1) Isolate c.
$2(t^2+2t\ \ )+1\ \ =0$	2) Get $a = 1$.
$2(t^2+2t+1)+1-2=0$ $2(t^2+2t+1)-1=0$	3) Take b, half it, square it, $2 \quad 1 \quad (1)^2=1$ and apply to equation.
$2(t+1)^2=1$ $\sqrt{(t+1)^2}=\sqrt{\frac{1}{2}}$ $\lvert t+1\rvert=\frac{1}{\sqrt{2}}\frac{\sqrt{2}}{\sqrt{2}}$	4) Solve. $t+1=\pm\frac{\sqrt{2}}{2}$ $t=-1\pm\frac{\sqrt{2}}{2}$ $\left\{\frac{-2\pm\sqrt{2}}{2}\right\}$

Solve.

29) $\frac{y^2}{4} - \frac{y}{2} + 1 = 0$ $= y^2 - 2y + 4 = 0$

$(y^2 - 2y\ \ ) + 4 = 0$

it is

$(y^2 - 2y + 1) + 4 = 0$

$(y-1)^2 + 3 = 0$

$\sqrt{(y-1)^2} = \sqrt{-3}$

$|y-1| = i\sqrt{3}$

$\{1 \pm i\sqrt{3}\}$

Completing the Square

$ax^2 + bx + c = 0$

1) Isolate c.

2) Get $a = 1$.

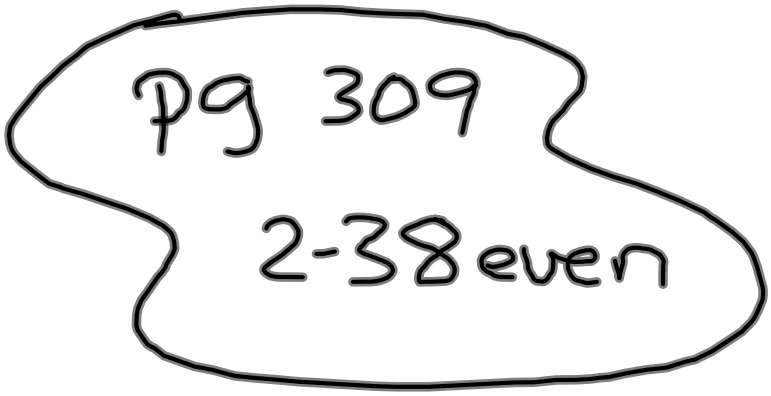
3) Take b, half it, square it, and apply to equation.

(-2) (-1) $(-1)^2 = 1$

4) Solve.

Solve.

35) $\frac{1}{y+2}+\frac{1}{y+6}=1$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