Completing the Square (part 2)

June 8

If there is a number other than 1 in front of the x^2, you MUST divide the equation by that number.

1 $\frac{3x^2 + 36x + 54 = 0}{3}$

$x^2 + 12x + 18 = 0$

$\left(\frac{12}{2}\right)^2$

$x^2 + 12x + 36 = -18 + 36$

$\sqrt{(x+6)^2} = \sqrt{18}$ $\sqrt{9}\sqrt{2}$

$x + 6 = \pm 3\sqrt{2}$

$x = -6 \pm 3\sqrt{2}$

2 $\frac{2x^2 - 16x - 12 = 0}{2}$

$x^2 - 8x - 6 = 0$

$x^2 - 8x + 16 = 6 + 16$

$\sqrt{(x-4)^2} = \sqrt{22}$

$x - 4 = 4 \pm \sqrt{22}$

3 $4x^2 - 8x - 572 = 0$

$x^2 - 2x - 143 = 0$

$\left(-\frac{2}{2}\right)^2$

$x^2 - 2x + 1 = 143 + 1$

$\sqrt{(x-1)^2} = \sqrt{144}$

$x - 1 = \pm 12$

$x = 1 \pm 12 = 13, -11$