

Completing the Square.

Ex1: (Solving an eq-n)

$$2x^2 + 5x + 1 = 0$$

$$2\left(x^2 + \frac{5}{2}x\right) + 1 = 0$$

$$2\left(x^2 + \frac{5}{2}x + \frac{25}{16} - \frac{25}{16}\right) + 1 = 0$$

$$2\left(x^2 + \frac{5}{2}x + \frac{25}{16}\right) - \frac{25}{8} + \frac{8}{8} = 0$$

$$2\left(x + \frac{5}{4}\right)^2 - \frac{17}{8} = 0$$

$$2\left(x + \frac{5}{4}\right)^2 = \frac{17}{8}$$

$$\left(x + \frac{5}{4}\right)^2 = \frac{17}{16}$$

$$x + \frac{5}{4} = \pm \sqrt{\frac{17}{16}}$$

$$x + \frac{5}{4} = \pm \frac{\sqrt{17}}{4}$$

$$x = -\frac{5}{4} \pm \frac{\sqrt{17}}{4}$$

$$x_{1,2} = \frac{-5 \pm \sqrt{17}}{4}$$

$$\sqrt{\frac{a}{b}} = \frac{\sqrt{a}}{\sqrt{b}}$$

$$\sqrt{ab} = \sqrt{a}\sqrt{b}$$