

Problem Find x when

$$2x^2 + 3x + 1 = 0$$

Solution

$$2x^2 + 3x + 1$$

$$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$\frac{5}{10}$$

$$\frac{-3 \pm \sqrt{3^2 - 4 \times 1 \times 2}}{2 \times 2} = \frac{-3 \pm \sqrt{9 - 8}}{4}$$

This is just a bunch of math scattered everywhere!

$$= \frac{-3 \pm 1}{4} = \underline{-1, -\frac{1}{2}}$$

Solution

$$2x^2 + 3x + 1 = 0$$

completing square $\Leftrightarrow 2(x + \frac{3}{4})^2 - 2(\frac{3}{4})^2 + 1 = 0$

This is a logical argument

$$\Leftrightarrow \cancel{2}(x + \frac{3}{4})^2 - \cancel{2}^1 \frac{9}{16} = 0$$

$$\Leftrightarrow x + \frac{3}{4} = \pm \frac{1}{4} \Leftrightarrow \underline{x = -\frac{1}{2}, -1}$$

$$\frac{10}{10}$$