$2x^2 + 3x - 7 = 0$

YSW 1 DT?

$2x^2 + 3x = 7$

$2\left(x^2 + \frac{3}{2}x + \left(\frac{3}{4}\right)^2\right) = 7 + 2\left(\frac{9}{16}\right)$

Need "1" $\frac{\frac{3}{2}}{2} = \frac{3}{4} \rightarrow \left(\frac{3}{4}\right)^2 = \frac{9}{16}$

$2\left(x + \frac{3}{4}\right)^2 = 7 + 2\left(\frac{9}{16}\right)$

$\left(x + \frac{3}{4}\right)^2 = \frac{7}{2} + \frac{9}{16} = \frac{56+9}{16} = \frac{65}{16}$

$\sqrt{\left(x + \frac{3}{4}\right)^2} = \sqrt{\frac{65}{16}}$

$\sqrt{3^2} = 3$

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

$|x + \frac{3}{4}| = \sqrt{\frac{65}{16}}$

$|x|$ does that

$x + \frac{3}{4} = \pm\sqrt{\frac{65}{16}}$

$x = -\frac{3}{4} \pm \frac{\sqrt{65}}{4}$

$\sqrt{\frac{65}{16}} = \frac{\sqrt{65}}{\sqrt{16}} = \frac{\sqrt{65}}{4}$

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

$\left(\sqrt{x}\right)^2 = x$

$x \geq 0$ has to be assumed for $\sqrt{x}$ to exist!

$2x^2 + 3x - 7 = 0 \Rightarrow 2(x+\frac{3}{4})^2 = 7 + \frac{9}{8}$

$a \quad b \quad c$

The cheat

$\frac{b}{2a}$ is the cheat

$2x^2 + 3x + ? = 2(x+\frac{3}{4})^2$

$a=2,\ b=3$

$\frac{b}{2a} = \frac{3}{4}$

$= 2(x^2 + \frac{3}{2}x + \frac{9}{16})$

$= 2x^2 + 3x + \frac{9}{8}$