$$3\left(x^2 - \frac{2}{3}\right) = 4 \qquad (1)$$

expand

$$3x^2 - 2 = 4 \qquad (2)$$

$+2$

$$3x^2 = 6 \qquad (3)$$

isolate the term with the variable $\div 3$

$$x^2 = 2 \qquad (4)$$

$\sqrt{\cdots}$

$$\sqrt{x^2} = \sqrt{2} \qquad (5)$$

$\sqrt{x} = |x|$

$$|x| = \sqrt{2} \qquad (6)$$

so that

$$x = \pm\sqrt{2} \qquad (7)$$

This example is from MathMode.pdf of Herbert Voß

$$y = 2x^2 - 3x + 5$$

$2x^2 - 3x$ is the beginning of an algebraic identity (binomial formula)

$$= 2\left(\underbrace{\overbrace{x^2 - \frac{3}{2}x + \left(\frac{3}{4}\right)^2 - \left(\frac{3}{4}\right)^2}^{=0}}_{} \underbrace{+ \frac{5}{2}}_{}\right)$$

$(a-b)^2 = a^2 - 2ab + b^2$

$$= 2\left(\left(x - \frac{3}{4}\right)^2 + \frac{31}{16}\right)$$

after simplication, the result is

$$y = 2\left(x - \frac{3}{4}\right)^2 + \frac{31}{8}$$