HOW TO COMPLETE THE SQUARE ON A QUADRATIC EQUATION

$y = ax^2 + bx + c \Rightarrow y = a(x-h)^2 + k$

vertex (h,k)

ved. str: a

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

$(x-3)^2 = x^2 - 6x + 9$

$(-\frac{6}{2})^2$

①

$y = x^2 - 8x + 3$

$y = (x^2 - 8x + 16) + 3 - 16$

$(-\frac{8}{2})^2$

$y = (x-4)^2 - 13$

②

$y = 2x^2 + 12x - 1$

$= 2(x^2 + 6x + 9) - 1 - 18$

$(3)^2$

$y = 2(x+3)^2 - 19$

③

$y = -2x^2 - 4x + 5$

$y = -2(x^2 + 2x + 1) + 5 + 2$

$(1)^2$

$y = -2(x+1)^2 + 7$

④

$y = 2x^2 - 10x + 3$

$= 2(x^2 - 5x + \frac{25}{4}) + 3 - 12\frac{1}{2}$

$(-\frac{5}{2})^2$

$2(\frac{25}{4}) = \frac{25}{2} = 12\frac{1}{2}$

$y = 2(x - \frac{5}{2})^2 - 9\frac{1}{2}$