factoring a quadratic

Tuesday, October 15, 2024 7:43 PM

(1) x^2+5x+6

(2) $2x^2+7x+3$

standard form: ax^2+bx+c

(1) x^2+5x+6

step (1) Identify a, b, c values -> $a=1, b=5, c=6$

step (2) multiply $a \cdot c \rightarrow ac=6$

step (3) find two numbers that multiply to 6 and add to 5

step (4) Decompose middle term

$x^2+5x+6 \rightarrow x^2+2x+3x+6$

$2 \times 3 = 6$

$2+3=5$

step (5) Group term in pairs and factor

$x^2+2x+3x+6$

$(x^2+2x)+(3x+6)$

$x(x+2) \quad +3(x+2)$

step (6) factor out common binomial

$(x+2)(x+3)$

1 2

(2) $2x^2+7x+3$

$a=2, b=7, c=3$

$ac=6$

$\times 6$
$+7$ } 6, 1

$2x^2+6x+x+3$

$(2x^2+6x)+(x+3)$

$2x(x+3)+1(x+3)$

$(2x+1)(x+3)$

1 2 1 2

$2x^2+7x+3$

$a=2, b=7, c=3$

$2 \times 3 = 6 \quad 7$

$1 \times 6 = 6 \quad 1+6=7$

$2x^2+6x+x+3$

$2x(x+3)+1(x+3)$

$(x+3)(2x+1)$