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$$\begin{aligned}A &= (2x - 1)^2 - 4x(2x + 3) \\&= (2x)^2 - 2 \times 2x \times 1 + 1^2 - 8x^2 - 12x \\&= 4x^2 - 4x + 1 - 8x^2 - 12x \\&= -4x^2 - 16x + 1\end{aligned}$$

$$\begin{aligned}B &= (3x - 2)(x + 1) + (x + 2)^2 \\&= 3x^2 + 3x - 2x - 2 + x^2 + 2 \times x \times 2 + 2^2 \\&= 3x^2 + x - 2 + x^2 + 4x + 4 \\&= 4x^2 + 5x + 2\end{aligned}$$