

### 3. Algebraic expressions

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Useful formulas

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

$$(a+b) \cdot (a-b) = a^2 - b^2$$

$$(a \pm b)(a^2 \mp ab + b^2) = a^3 \mp b^3$$

**Doplňení na čtverec dvojčlenu**

$$\begin{aligned} ax^2 + bx + c &= a \cdot \left( x^2 + \frac{b}{a}x \right) + c \\ &= a \cdot \left( x^2 + 2 \cdot \frac{b}{2a}x + \underbrace{\frac{b^2}{4a^2} - \frac{b^2}{4a^2}}_0 \right) + c \\ &= a \cdot \left( x^2 + 2 \frac{b}{2a}x + \underbrace{\left( \frac{b}{2a} \right)^2}_{a^2 + 2ab + b^2} \right) + c - \frac{b^2}{4a} \\ &= a \cdot \left( x + \frac{b}{2a} \right)^2 + c - \frac{b^2}{4a} \\ &\quad \underbrace{\hspace{10em}}_{\text{čtverec dvojčlenu a zbytek}} \end{aligned}$$