

$$\begin{aligned}
 \text{a)} \quad x^2 + x + 1 &= x^2 + 2 \times x \times \frac{1}{2} + 1 \\
 &= \left(x + \frac{1}{2}\right)^2 - \frac{1}{4} + 1 \\
 &= \left(x + \frac{1}{2}\right)^2 + 3/4.
 \end{aligned}$$

$$\begin{aligned}
 \text{b)} \quad 2x^2 - 4x + 2 &= 2 \times [x^2 - 2x + 1] \\
 &= 2 \times [x^2 - 2 \times x \times 1 + 1] \\
 &= 2 \times [(x - 1)^2 - 1 + 1] \\
 &= 2(x - 1)^2.
 \end{aligned}$$

$$\begin{aligned}
 \text{c)} \quad 2x^2 - 6x - 8 &= 2 \times [x^2 - 3x - 4] \\
 &= 2 \times \left[ x^2 - 2 \times x \times \frac{3}{2} - 4 \right] \\
 &= 2 \times \left[ \left(x - \frac{3}{2}\right)^2 - \frac{9}{4} - 4 \right] \\
 &= 2 \times \left[ \left(x - \frac{3}{2}\right)^2 - \frac{25}{4} \right].
 \end{aligned}$$

d)  $7x^2 + 5$  est déjà sous la forme souhaitée.