

$$\begin{aligned}
 10. \quad y^2 + 12y + 11 &= y^2 + 12y + 36 - 36 + 11 \\
 &= (y+6)^2 - 25 \\
 &= (y+6+5)(y+6-5) \\
 &= (y+11)(y+1)
 \end{aligned}$$

$$\begin{aligned}
 11. \quad 9x^2 + 9x + 2 &= 9\left(x^2 + x + \frac{2}{9}\right) \\
 &= 9\left(x^2 + x + \frac{1}{4} - \frac{1}{4} + \frac{2}{9}\right) \\
 &= 9\left[\left(x + \frac{1}{2}\right)^2 - \frac{9}{36} + \frac{8}{36}\right] \\
 &= 9\left[\left(x + \frac{1}{2}\right)^2 - \frac{1}{36}\right] \\
 &= 9\left[\left(x + \frac{1}{2} + \frac{1}{6}\right)\left(x + \frac{1}{2} - \frac{1}{6}\right)\right] \\
 &= 9\left(x + \frac{4}{6}\right)\left(x + \frac{2}{6}\right) \\
 &= 3\left(x + \frac{2}{3}\right) \cdot 3\left(x + \frac{1}{3}\right) = (3x+2)(3x+1)
 \end{aligned}$$

$$\begin{aligned}
 12. \quad 3x^2 + 15x + 12 &= 3(x^2 + 5x + 4) \\
 &= 3\left[x^2 + 5x + \frac{25}{4} - \frac{25}{4} + 4\right] \\
 &= 3\left[\left(x + \frac{5}{2}\right)^2 - \frac{9}{4}\right] \\
 &= 3\left[\left(x + \frac{5}{2} + \frac{3}{2}\right)\left(x + \frac{5}{2} - \frac{3}{2}\right)\right] \\
 &= 3(x+4)(x+1)
 \end{aligned}$$