

Factor Completely.

$$\textcircled{1} \quad x^2 - x - 30 \\ (x-6)(x+5)$$

$$\textcircled{2} \quad z^2 - 9z + 14 \\ (z-2)(z-7)$$

$$\textcircled{3} \quad p^2 - 2p - 3 \\ (p-3)(p+1)$$

$$\textcircled{4} \quad x^2 + 11x + 30 \\ (x+6)(x+5)$$

$$\textcircled{5} \quad \overbrace{4v^2 + v - 3} \\ 4v^2 + 4v - 3v - 3 \quad \begin{array}{r} 12 \\ 12 \quad 1 \\ 6 \quad 2 \\ 4 \quad 3 \leftarrow \end{array} \\ 4v(v+1) - 3(v+1) \\ (4v-3)(v+1)$$

$$\textcircled{6} \quad \overbrace{7w^2 + 10w - 17} \\ 7w^2 + 17w - 7w - 17 \quad \begin{array}{r} 119 \\ 119 \quad 1 \\ 17 \quad 7 \leftarrow \end{array} \\ w(7w+17) - 1(7w+17) \\ (w-1)(7w+17)$$

$$\textcircled{7} \quad \overbrace{2y^2 + 9y - 18} \\ 2y^2 + 12y - 3y - 18 \quad \begin{array}{r} 36 \\ 36 \quad 1 \\ 18 \quad 2 \\ 12 \quad 3 \leftarrow \end{array} \\ 2y(y+6) - 3(y+6) \\ (2y-3)(y+6)$$

$$\textcircled{8} \quad \overbrace{7p^2 - 6p - 13} \\ 7p^2 - 13p + 7p - 13 \quad \begin{array}{r} 91 \\ 91 \quad 1 \\ 13 \quad 7 \leftarrow \end{array} \\ p(7p-13) + 1(7p-13) \\ (p+1)(7p-13)$$

$$\textcircled{9} \quad 5a^2 - 90a - 95 \\ 5(a^2 - 18a - 19) \\ 5(a^2 - 19a + a - 19) \\ 5[a(a-19) + 1(a-19)] \\ 5(a+1)(a-19)$$

$$\textcircled{10} \quad 2a^2 - 4a - 16 \\ 2(a^2 - 2a - 8) \\ 2(a^2 - 4a + 2a - 8) \\ 2[a(a-4) + 2(a-4)] \\ 2(a+2)(a-4)$$

$$\textcircled{11} \quad 2x^2 + 13x + 6 \\ 2x^2 + 12x + x + 6 \\ 2x(x+6) + 1(x+6) \\ (2x+1)(x+6)$$

$$\textcircled{12} \quad 2n^2 + 3n - 2 \\ 2n^2 + 4n - n - 2 \\ 2n(n+2) - 1(n+2) \\ (2n-1)(n+2)$$