1. $a^6b^3 - 6a^4b^2 + 12a^2b - 8 = \mathbf{(a^2b - 2)^3}$

2. $2a^{3n} - 2a^nb^{2n} + a^{2n}b^n - b^{3n} = 2a^n(a^{2n} - b^{2n}) + b^n(a^{2n} - b^{2n}) =$

   $= (a^{2n} - b^{2n})(2a^n + b^n) = \mathbf{(a^n - b^n)(a^n + b^n)(2a^n + b^n)}$

3. $a^6 + b^6 = \mathbf{(a^2 + b^2)(a^4 - a^2b^2 + b^4)}$

4. $\frac{25}{4}a^2b^2 + 4 - 10ab = \mathbf{\left(\frac{5}{2}ab - 2\right)^2}$

5. $2x^3 - 8x + x^2 - 4 = 2x(x^2 - 4) + (x^2 - 4) = (x^2 - 4)(2x + 1) = \mathbf{(x - 2)(x + 2)(2x + 1)}$

6. $b(a + 1)^2 + 2b(a + 1) + b = b[(a + 1)^2 + 2(a + 1) + 1] = b[(a + 1) + 1]^2 = \mathbf{b(a + 2)^2}$

7. $x^2a^3 - x^2 - a^3x + x = x(a^3x - x - a^3 + 1) = x[x(a^3 - 1) - (a^3 - 1)] =$

   $= x(a^3 - 1)(x - 1) = \mathbf{x(a - 1)(a^2 + a + 1)(x - 1)}$

8. $x^{4n+1} + 4x^{2n+1} + 4x = x(x^{4n} + 4x^{2n} + 4) = \mathbf{x(x^{2n} + 2)^2}$

9. $ax^2 + 6ax + 5a + bx^2 + 6bx + 5b = a(x^2 + 6x + 5) + b(x^2 + 6x + 5) =$

   $= (x^2 + 6x + 5)(a + b) = \mathbf{(x + 5)(x + 1)(a + b)}$

10. $x^3y^3 - 6x^2y^2 + 12xy - 8 = \mathbf{(xy - 2)^3}$

11. $a^3x^2 - b^6x^2 - a^3y^2 + b^6y^2 = x^2(a^3 - b^6) - y^2(a^3 - b^6) = (a^3 - b^6)(x^2 - y^2) =$

    $= \mathbf{(a - b^2)(a^2 + ab^2 + b^4)(x - y)(x + y)}$

12. $0{,}027\, b^3 + 0{,}001 = \mathbf{(0{,}3\, b + 0{,}1)(0{,}09\, b^2 - 0{,}03\, b + 0{,}01)}$

13. $ax^2 - 9a + bx^2 - 9b = a(x^2 - 9) + b(x^2 - 9) = (x^2 - 9)(a + b) = \mathbf{(x - 3)(x + 3)(a + b)}$

14. $x^2 - 2xy + y^2 - c^4 = (x - y)^2 - (c^2)^2 = \mathbf{(x - y - c^2)(x - y + c^2)}$

15. $6a^4x^3 + 18a^3x^2 - 24a^2x = 6a^2x(a^2x^2 + 3ax - 4) = \mathbf{6a^2x(ax + 4)(ax - 1)}$