

최고난도 인수분해 2163제

I

문제

1. 사차식의 인수분해

1.1 일계수 사차식

$$\begin{aligned} &x^4 + 6x^3 + 9x^2 + 12x - 20 \\ &x^4 + 3x^3 - 5x^2 + 6x - 2 \\ &x^4 - 9x^3 + 19x^2 + 3x - 2 \\ &x^4 - 3x^3 - 8x^2 + 11x + 3 \\ &x^4 + 5x^3 + 10x^2 + 18x + 8 \\ &x^4 - 3x^3 - 4x^2 + 11x + 5 \\ &x^4 + x^3 - 4x^2 + 11x - 15 \\ &x^4 + 6x^3 + 9x^2 - 5 \\ &x^4 + 7x^3 + 9x^2 + 10x - 20 \\ &x^4 - 4x^3 - 3x^2 + 20x - 10 \\ &x^4 - 9x^3 + 15x^2 + 22x + 6 \\ &x^4 - 6x^3 + 12x^2 - 9x - 10 \\ &x^4 + 4x^3 - 8x^2 + 9x - 4 \\ &x^4 - 8x^2 - 15x - 6 \\ &x^4 - 5x^3 - 2x^2 + 25x - 15 \\ &x^4 - 23x^2 + 40x - 15 \\ &x^4 + 2x^2 + 5x - 4 \\ &x^4 + 6x^3 + 3x^2 + 10x - 15 \\ &x^4 + 7x^3 + 20x^2 + 27x + 15 \\ &x^4 - 25 \\ &x^4 - x^3 + x^2 + 3x - 12 \\ &x^4 + x^3 - 4x^2 + 11x - 3 \\ &x^4 - 8x^3 + 16x^2 - 11x - 12 \\ &x^4 - 2x^3 - 2x^2 + 17x - 20 \\ &x^4 + 9x^3 + 12x^2 - 36x + 16 \\ &x^4 - 2x^3 - x^2 - 2x - 2 \\ &x^4 - 4x^3 - 3x^2 + 20x - 15 \\ &x^4 + 2x^3 + 7x^2 + 10x + 25 \\ &x^4 + x^3 - 5x^2 - 2x + 6 \\ &x^4 - 4x^3 + 7x^2 - 10x + 3 \\ &x^4 + x^3 - 18x^2 + x + 1 \\ &x^4 - 5x^3 + 9x^2 - 11x - 10 \\ &x^4 + 7x^3 + 4x^2 - 18x + 8 \\ &x^4 - 9x^3 + 21x^2 - 20 \end{aligned}$$

$$\begin{aligned} &x^4 + 2x^3 - 21x^2 - 6x + 9 \\ &x^4 - 6x^3 - x^2 + 18x + 9 \\ &x^4 + 4x^2 - x + 6 \\ &x^4 - 3x^3 - 6x^2 - 13x + 3 \\ &x^4 - 5x^3 + 4x^2 + 3x - 1 \\ &x^4 + 8x^3 + 11x^2 - 18x + 3 \\ &x^4 - 6x^3 + 8x^2 + 10x - 25 \\ &x^4 - 5x^3 + 7x^2 - 20x + 12 \\ &x^4 + 4x^3 - x^2 + 8x + 4 \\ &x^4 + 5x^3 + 5x^2 - 2x - 2 \\ &x^4 - 6x^2 - 15x - 4 \\ &x^4 - 2x^3 - 18x^2 + 7x + 2 \\ &x^4 + 5x^3 + 4x^2 + 3x - 1 \\ &x^4 - 3x + 20 \\ &x^4 - x^3 - 22x^2 - 26x - 8 \\ &x^4 - x^3 - 26x^2 - 6x + 8 \\ &x^4 + x^3 - 20x^2 - 11x + 15 \\ &x^4 - 7x^3 + 12x^2 - 16x - 8 \\ &x^4 + 3x^3 - 7x^2 - 2x + 2 \\ &x^4 - 5x^3 + 6x^2 - 14x - 8 \\ &x^4 + 3x^3 - 7x^2 - 20x - 10 \\ &x^4 + 6x^3 + x^2 - 24x + 15 \\ &x^4 - 3x^3 + x^2 - 2 \\ &x^4 + x^3 + 2x^2 + 11x - 5 \\ &x^4 + 2x^3 - 13x^2 - 30x - 15 \\ &x^4 + 3x^3 - 16x^2 - 16x + 8 \\ &x^4 - x^3 - 3x^2 - x + 20 \\ &x^4 - 6x^3 + 2x^2 + 22x + 5 \\ &x^4 + 2x^3 - 9x^2 - 10x + 8 \\ &x^4 - 6x^3 + 3x^2 - 10x - 15 \\ &x^4 + x^3 - 17x^2 + x + 6 \\ &x^4 - 9x^3 + 21x^2 - 2x - 6 \\ &x^4 - 3x^3 - 3x^2 - 14x - 6 \\ &x^4 + 2x^3 + 4x^2 + 9x + 12 \end{aligned}$$

$$\begin{aligned} &x^4 + 2x^3 - 15x^2 - 24x - 9 \\ &x^4 + 3x^3 + 3x^2 - 6x - 10 \\ &x^4 - x^3 - 10x - 8 \\ &x^4 + 5x^3 - 2x^2 + 15x - 15 \\ &x^4 + 3x^3 + x^2 - 2 \\ &x^4 + 9x^3 + 15x^2 - 22x + 6 \\ &x^4 + 2x^3 - 7x^2 - 8x + 16 \\ &x^4 - x^3 - 20x^2 + 9x - 1 \\ &x^4 + 6x^2 + x + 12 \\ &x^4 - 5x^3 + 6x^2 - 20x + 8 \\ &x^4 + 3x^3 - 4x^2 + 15x - 9 \\ &x^4 - x^3 + 2x^2 - 9x + 15 \\ &x^4 - 3x^3 + 2x^2 - x - 1 \\ &x^4 + x^3 + x^2 + 4x - 12 \\ &x^4 + 7x^3 + 16x^2 + 11x - 5 \\ &x^4 - 5x^3 + x^2 - 10x - 2 \\ &x^4 + 7x^3 + 8x^2 + 5x - 15 \\ &x^4 - 3x^3 - 5x^2 - 4x + 6 \\ &x^4 + 9x^3 + 16x^2 - 19x + 3 \\ &x^4 - 4x^3 - 7x^2 + 4x + 1 \\ &x^4 + 3x^3 + 6x^2 + 15x + 5 \\ &x^4 - 22x^2 + 35x - 10 \\ &x^4 - 4x^3 + 3x^2 - 10x + 15 \\ &x^4 + x^3 + 5x^2 - x + 10 \\ &x^4 - x^3 - 10x^2 + 4x + 16 \\ &x^4 - 3x^3 - 16x^2 + 2x + 8 \\ &x^4 - 9x^3 + 14x^2 + 26x + 8 \\ &x^4 - 3x^3 - 13x^2 + 29x - 10 \\ &x^4 + 3x^3 - 2x^2 - 15x - 15 \\ &x^4 + 3x^3 + 3x^2 - 2x - 12 \\ &x^4 - 8x^3 + 17x^2 - 4x - 3 \\ &x^4 + 5x^3 + 7x^2 + 25x + 10 \\ &x^4 + 8x^3 + 15x^2 + 2x - 1 \\ &x^4 - 5x^3 - x^2 + 16x + 10 \end{aligned}$$

$$\begin{aligned}
& x^4 - 9x^3 + 17x^2 + 10x - 10 \\
& x^4 - x^3 - 14x^2 + 15x - 3 \\
& x^4 - x^3 - 6x^2 - 10x - 4 \\
& x^4 + 7x^3 + 9x^2 - 8x - 2 \\
& x^4 - x^3 + x^2 - 2x - 2 \\
& x^4 + 2x^3 - 6x^2 - x + 2 \\
& x^4 - x^3 - 2x^2 - 12x - 16 \\
& x^4 - 9x^2 + 18x - 9 \\
& x^4 - 10x^2 - 4x + 8 \\
& x^4 - 4x^3 - x^2 + 8x - 2 \\
& x^4 + 5x^3 - 7x^2 - 15x + 12 \\
& x^4 - 6x^3 + 17x^2 - 24x + 15 \\
& x^4 + 2x^3 + 10x^2 + 9x + 20 \\
& x^4 - 4x^3 - 4x^2 - 11x - 2 \\
& x^4 - 9x^3 + 14x^2 + 25x + 5 \\
& x^4 - 5x^3 + 10x^2 - 7x - 5 \\
& x^4 - x^3 - 6x^2 + 3x + 9 \\
& x^4 - 3x^3 - 10x^2 + 7x - 1 \\
& x^4 - 6x^3 - 4x^2 + 29x + 20 \\
& x^4 + 6x^3 + 3x^2 - 18x + 4 \\
& x^4 - 2x^3 + 10x^2 - 10x + 25 \\
& x^4 + 7x^2 + 2x + 15 \\
& x^4 + x^3 + 2x^2 - 7x - 5 \\
& x^4 + 3x^3 - x^2 + 22x - 10 \\
& x^4 + 8x^3 + 19x^2 + 10x - 5 \\
& x^4 + 3x^3 + 5x^2 + 4x + 2
\end{aligned}$$

$$\begin{aligned}
& x^4 - 4x^2 - 8x - 4 \\
& x^4 + 6x^3 - 24x + 16 \\
& x^4 + 2x^3 + 2x^2 + 6x - 3 \\
& x^4 + 2x^3 + x^2 - 9 \\
& x^4 - 7x^3 + 10x^2 - 12x - 16 \\
& x^4 + 6x^3 - 3x^2 - 24x + 16 \\
& x^4 - x^3 - 3x^2 - x - 4 \\
& x^4 + 6x^3 + 7x^2 + 14x - 3 \\
& x^4 + 4x^3 - 9x^2 + 10x - 5 \\
& x^4 - 2x^3 - 10x - 25 \\
& x^4 + x^3 - 26x^2 - 3x + 9 \\
& x^4 - x^3 - 21x^2 - 13x - 2 \\
& x^4 - 15x^2 - 12x - 2 \\
& x^4 + 4x^3 - 5x^2 + 12x - 4 \\
& x^4 + 2x^3 - 10x^2 + 9x + 6 \\
& x^4 - 4x^3 + 3x^2 - 4x - 4 \\
& x^4 + 7x^3 + 8x^2 - 17x - 5 \\
& x^4 + 2x^3 - 13x^2 + 18x - 3 \\
& x^4 + 4x^3 - 6x^2 - 20x + 5 \\
& x^4 - 4x^3 - 3x^2 + 8x + 5 \\
& x^4 - 27x^2 + 1 \\
& x^4 + 9x^3 + 16x^2 - 18x + 4 \\
& x^4 + 6x^3 + 6x^2 + 17x - 12 \\
& x^4 - 6x^3 + 3x^2 - 2x - 3 \\
& x^4 - 5x^3 + 5x^2 - 6 \\
& x^4 - 3x^3 + x^2 - 15x + 4
\end{aligned}$$

$$\begin{aligned}
& x^4 - 3x^3 - 6x^2 + 13x - 3 \\
& x^4 - 4x^3 + 13x^2 - 20x + 25 \\
& x^4 - 2x^3 + 2x^2 - x - 20 \\
& x^4 - 2x^3 - 7x^2 + 26x - 20 \\
& x^4 + 3x^3 - 4x^2 + 20x - 16 \\
& x^4 - 5x^3 + 5x^2 - 10x + 6 \\
& x^4 - 3x^3 - 5x^2 + 9x + 6 \\
& x^4 - 4x^3 + 6x^2 - 4x - 8 \\
& x^4 + 2x^3 + 13x - 4 \\
& x^4 - 8x^3 + 11x^2 + 20x + 6 \\
& x^4 + 3x^3 + 10x^2 + 15x + 25 \\
& x^4 + x^3 - 23x^2 + 3x + 2 \\
& x^4 + 10x^3 + 25x^2 - 9 \\
& x^4 + x^3 - 12x^2 + 28x - 16 \\
& x^4 - x^3 - 23x^2 - 3x + 2 \\
& x^4 - 34x^2 + 5x + 20 \\
& x^4 - 5x^3 - 2x^2 - 10x - 8 \\
& x^4 - x^3 - 15x^2 + 5x + 2 \\
& x^4 + 2x^3 - 7x^2 + 16x - 6 \\
& x^4 - 2x^3 - 14x^2 + 8 \\
& x^4 - 10x^3 + 21x^2 + 20x + 4 \\
& x^4 - 7x^3 + 7x^2 + 9x + 2 \\
& x^4 + 8x^3 + 15x^2 - 4x - 6 \\
& x^4 - x^3 + 7x^2 - 4x + 12 \\
& x^4 + 3x^3 + x^2 - 6x - 20 \\
& x^4 - x^3 - 3x^2 - 14x - 4
\end{aligned}$$

1.2 일계수가 아닌 사차식

$$\begin{aligned}
& 10x^4 - 13x^3 + 18x^2 - 10x + 4 \\
& 20x^4 + 36x^3 + 29x^2 + 8x - 15 \\
& 3x^4 + x^3 - 7x^2 - 2x + 2 \\
& 8x^4 + 18x^3 - 16x^2 - 19x + 12 \\
& 10x^4 + 14x^3 + 13x^2 + 6x + 2 \\
& 9x^4 + 3x^3 - 33x^2 - 2x + 20 \\
& 5x^4 + 19x^3 + 19x^2 + 10x + 2 \\
& 10x^4 - 4x^3 + 19x^2 - x + 15 \\
& 6x^4 + 3x^3 + 2x^2 + 4x - 8 \\
& 15x^4 + 37x^3 - 7x^2 - 32x + 12 \\
& 20x^4 + 20x^3 - 7x^2 - 15x - 6 \\
& 8x^4 + 2x^3 - 13x^2 + 9x - 20 \\
& 10x^4 - 3x^2 + 3x + 1 \\
& 9x^4 + 14x^2 - 3x + 4 \\
& 9x^4 - 6x^3 - 39x^2 + 8x + 16 \\
& 10x^4 + 30x^3 - x^2 - 27x + 9 \\
& 16x^4 + 8x^3 + 9x^2 - 11x - 10 \\
& 12x^4 - 12x^3 - 13x^2 + 9x + 3
\end{aligned}$$

$$\begin{aligned}
& 4x^4 - 4x^3 - 13x^2 - 21x - 6 \\
& 8x^4 + 18x^3 + 29x^2 + 21x + 12 \\
& 6x^4 + 10x^3 - 7x^2 - 10x + 4 \\
& 8x^4 - 2x^3 - 19x^2 - 3x + 4 \\
& 2x^4 + 2x^3 + 9x^2 + 6x + 9 \\
& 15x^4 + 10x^3 + 24x^2 + 17x + 12 \\
& 20x^4 - 32x^3 - 5x^2 + 15x + 3 \\
& 10x^4 - 4x^3 + 17x^2 - 10x - 20 \\
& 10x^4 + 4x^3 - 13x^2 - 2x + 4 \\
& 3x^4 - 2x^3 + 6x^2 - 6x - 9 \\
& 15x^4 + 10x^3 + 7x^2 + 16 \\
& 2x^4 - 4x^3 - 11x^2 + 6x + 12 \\
& 5x^4 - 12x^3 - 13x^2 - 6x - 1 \\
& 5x^4 - 3x^3 - 22x^2 - 15x - 25 \\
& 5x^4 + 19x^3 - 23x^2 + 8x - 4 \\
& 20x^4 + 27x^3 + 46x^2 + 24x + 15 \\
& 2x^4 + 8x^3 + 15x^2 + 7x - 5 \\
& 20x^4 - 19x^3 + 29x^2 - 14x + 8
\end{aligned}$$

$$\begin{aligned}
& 4x^4 + 15x^2 - 2x + 15 \\
& 5x^4 + 16x^3 - 11x^2 - 3 \\
& 10x^4 - 5x^3 - 13x^2 + 11x - 2 \\
& 10x^4 + 17x^3 - 23x^2 - 13x + 12 \\
& 4x^4 - 12x^3 + 9x^2 - 18x - 8 \\
& 9x^4 - 15x^3 + 36x^2 - 25x + 25 \\
& 25x^4 + 36x^2 + 3x + 20 \\
& 10x^4 + 27x^3 + 14x^2 + 11x + 2 \\
& 16x^4 + 8x^3 - 8x^2 - 6x - 3 \\
& 12x^4 - 31x^3 + 9x^2 + 13x - 15 \\
& 4x^4 + 12x^3 + 23x^2 + 25x + 20 \\
& 3x^4 - 14x^3 + 31x^2 - 28x + 5 \\
& 3x^4 - 4x^3 + 6x^2 + 4x + 3 \\
& 4x^4 - 8x^3 + x^2 - 10x - 5 \\
& 12x^4 - 12x^3 - 5x^2 + 9x - 3 \\
& 6x^4 - 10x^3 - 5x^2 + 25x - 25 \\
& 25x^4 - 30x^3 + 15x^2 - 22x - 15 \\
& 4x^4 + 11x^3 - 2x^2 - 33x - 10
\end{aligned}$$

$15x^4 + 9x^3 + 5x^2 - 6x - 10$	$20x^4 - 25x^3 - 6x^2 - x - 4$	$20x^4 - 35x^3 + 47x^2 - 29x + 12$
$15x^4 - 14x^3 + 14x^2 - 12x + 8$	$25x^4 + 20x^3 + 34x^2 + 12x + 5$	$4x^4 - 6x^3 + 12x^2 - 9x + 4$
$12x^4 + 23x^3 + 24x^2 + 21x - 10$	$20x^4 + 5x^3 - 42x^2 + 35x - 10$	$10x^4 + 20x^3 + 13x^2 + 16x + 4$
$3x^4 + 8x^3 + 7x^2 - 20x - 25$	$4x^4 + 20x^3 + 17x^2 + 16x - 5$	$20x^4 - 5x^3 - 43x^2 + 4$
$20x^4 + 6x^3 + 17x^2 - x + 3$	$3x^4 - 9x^3 - 14x^2 + 23x - 5$	$5x^4 - 15x^3 + 29x^2 - 23x + 12$
$20x^4 - 9x^3 + 18x^2 - 4x + 3$	$15x^4 - 5x^3 + 6x^2 - 31x - 15$	$8x^4 - 28x^3 + 2x^2 + 33x + 10$
$15x^4 - 2x^3 - x^2 - 8x - 15$	$16x^4 - 32x^3 - 9x^2 + 22x + 8$	$15x^4 + 16x^3 - 8x^2 + 23x - 4$
$9x^4 - 12x^3 + 21x^2 - 20x + 10$	$20x^4 - 2x^3 - x^2 - 25x - 25$	$10x^4 - 27x^3 + 28x^2 - 5$
$9x^4 - 3x^3 + 3x^2 + x - 2$	$4x^4 + 3x^3 + 12x^2 + 3x + 10$	$4x^4 + 23x^3 + 4x^2 - 21x + 6$
$5x^4 - 9x^3 - 4x^2 + 7x + 3$	$5x^4 + 2x^3 + 6x^2 + 4x - 8$	$15x^4 - 7x^3 + 3x - 1$
$16x^4 - 16x^3 + 15x^2 - 7x + 2$	$15x^4 + 4x^3 - 8x^2 + 8x - 4$	$4x^4 - 2x^3 + 11x^2 - x + 10$
$5x^4 - 19x^3 + 10x^2 - 5x - 3$	$20x^4 - 5x^3 - 3x^2 + 2x - 2$	$12x^4 - 6x^3 + 17x^2 - 4x + 6$
$6x^4 + 3x^3 + 2x^2 - 5x - 20$	$9x^4 + 12x^3 + x^2 - 20x - 15$	$5x^4 + 15x^3 - 39x^2 + 24x - 4$
$2x^4 + 7x^3 + 5x^2 - 9x - 12$	$2x^4 + 9x^3 + 22x^2 + 27x + 20$	$10x^4 + 11x^3 + 24x^2 + 12x + 9$
$15x^4 + 32x^3 + 48x^2 + 32x + 16$	$16x^4 - 4x^3 - 24x^2 - 31x - 12$	$2x^4 + 13x^3 + 13x^2 - 25x + 5$
$4x^4 + 17x^3 + 6x^2 - 7x - 2$	$5x^4 + 9x^3 + 12x^2 + 6x + 8$	$25x^4 - 25x^3 + 21x^2 - 4x - 10$
$15x^4 - 13x^3 - 6x^2 - 4x - 16$	$20x^4 + 45x^3 + 13x^2 - 10x - 8$	$9x^4 - 12x^3 + 7x^2 - 2x + 3$
$3x^4 - 10x^3 - 16x^2 - 5x + 6$	$10x^4 + 22x^3 + 13x^2 - 9x - 9$	$3x^4 + 9x^3 - 14x^2 - 25x + 25$
$5x^4 - x^3 + 24x^2 - 5x - 5$	$16x^4 + 24x^3 - 16x^2 - 14x + 5$	$3x^4 + 6x^3 + x^2 - 6x + 3$
$9x^4 - 24x^3 + 28x^2 - 16x - 5$	$15x^4 - 13x^3 + 9x^2 - 2$	$3x^4 + 9x^3 - 17x^2 + 10x - 2$
$8x^4 + 14x^3 + 4x^2 + x - 15$	$9x^4 + 6x^3 + 9x^2 - 2x - 4$	$6x^4 - 11x^3 + 2x^2 + 11x - 20$
$12x^4 + 24x^3 + 43x^2 + 31x + 20$	$16x^4 + 24x^3 + 25x^2 + 9x + 4$	$3x^4 + x^3 - 13x^2 + 16x - 6$
$10x^4 - 14x^3 - 37x^2 + 11x + 15$	$2x^4 - 4x^3 + 9x^2 - 7x + 6$	$2x^4 - 2x^3 - 13x^2 - 17x - 6$
$12x^4 + 18x^3 - 13x^2 - 11x + 4$	$5x^4 + 3x^3 + 10x^2 - 2x + 4$	$4x^4 - 2x^3 + 5x^2 - 2x + 1$
$20x^4 - 26x^3 - 13x^2 + 18x - 5$	$15x^4 - 26x^3 + 4x^2 - 4x - 4$	$20x^4 - 11x^3 - 5x^2 + 11x - 6$
$16x^4 + 20x^3 - 32x^2 - 15x + 15$	$9x^4 - 31x^2 - 20x - 3$	$12x^4 + 14x^3 + 15x^2 + 7x + 12$
$25x^4 + 25x^3 - 25x^2 - 5x + 4$	$9x^4 + 18x^3 + 23x^2 + 18x + 9$	$5x^4 - 15x^3 + 19x^2 - 8x - 2$
$12x^4 + x^3 + 7x^2 - 3x + 3$	$4x^4 + 17x^3 + x^2 + 18x - 10$	$4x^4 + 15x^3 - 20x^2 - 25x - 6$
$5x^4 - 11x^3 + 31x^2 - 13x + 20$	$25x^4 + 20x^3 + 5x^2 + 28x - 15$	$15x^4 - 4x^3 + 8x^2 - x + 2$
$5x^4 - 11x^3 + 10x^2 + 29x - 15$	$12x^4 - 14x^3 - 23x^2 - 13x - 4$	$5x^4 - 9x^3 + 12x^2 - 7x + 3$
$12x^4 - 10x^3 + 19x^2 - 9x - 5$	$15x^4 + x^3 - 18x^2 + 11x - 3$	$2x^4 + 12x^3 - x^2 - 15x + 5$
$5x^4 - x^3 - 12x^2 + 3x - 9$	$20x^4 - 30x^3 - x^2 + 13x - 3$	$4x^4 - 2x^3 + 6x^2 - 3x + 9$
$4x^4 + 4x^3 - 16x^2 - 22x - 5$	$4x^4 - 17x^3 - 12x^2 + 31x - 10$	$4x^4 + 4x^3 + 12x^2 + 2x + 5$
$6x^4 - 21x^3 + 4x^2 + 23x + 4$	$12x^4 - 32x^3 - 11x^2 + 41x + 20$	$10x^4 + 13x^3 + 25x^2 + 8x + 16$
$10x^4 - 17x^3 - 4x^2 - 9x - 12$	$3x^4 + 9x^3 + 7x^2 - 4x - 10$	$6x^4 - 4x^3 - 23x^2 + x + 15$
$3x^4 + 10x^3 - 22x^2 - 25x - 6$	$5x^4 - 9x^3 + 18x^2 - 12x + 8$	$10x^4 + 19x^3 + 29x^2 + 18x + 12$
$4x^4 - 8x^3 - 12x^2 + 12x + 9$	$4x^4 + 3x^3 - 22x^2 + 4x + 5$	$10x^4 - 17x^3 - 35x^2 - 45x - 25$
$3x^4 - 14x^2 + 15$	$15x^4 + 21x^3 - 22x^2 - 13x + 5$	$15x^4 + 37x^3 + 26x^2 - 3x - 9$
$20x^4 + 10x^3 + 11x^2 + 27x - 5$	$3x^4 - 13x^3 - 12x^2 - 24x - 8$	$6x^4 - 13x^3 - 3x^2 + 11x + 2$
$2x^4 - 7x^3 + 12x^2 - 19x - 4$	$16x^4 + 16x^3 - 25x^2 - 15x + 12$	$12x^4 + 19x^3 + x^2 + 6x - 8$
$10x^4 + 4x^3 + 15x^2 + 10x - 25$	$16x^4 - 12x^3 - 30x^2 + 11x + 6$	$15x^4 - 3x^3 + 10x^2 + x - 5$
$20x^4 + 41x^3 - 8x^2 - 26x + 8$	$5x^4 - 4x^3 + 13x^2 + 4x - 3$	$15x^4 - 6x^3 - 14x^2 + 21x - 10$

2. 오차식의 인수분해

2.1 일계수 오차식

$$\begin{aligned} & x^5 + 7x^4 + 13x^3 + 18x^2 - 25x + 6 \\ & x^5 + 5x^4 + 5x^3 + 10x^2 - 24x + 9 \\ & x^5 - 2x^4 + 8x^3 - 12x^2 + 15x - 25 \\ & x^5 + 7x^4 + 9x^3 - 19x^2 - 22x + 20 \\ & x^5 - 2x^4 - 13x^3 - 30x^2 - 20x - 16 \\ & x^5 - 5x^4 + 2x^3 + 21x^2 - 19x - 20 \\ & x^5 - 4x^4 + 11x^3 - 14x^2 + 11x + 20 \\ & x^5 + 2x^4 - x^3 - 7x^2 - 4x + 5 \\ & x^5 + 2x^4 - 14x^3 + 2x^2 + 9x - 3 \\ & x^5 + 4x^4 + x^3 - 2x^2 - 12x - 8 \\ & x^5 - 11x^3 + 7x^2 + 22x - 20 \\ & x^5 + 2x^4 - 8x^3 + x^2 + 18x - 12 \\ & x^5 + 2x^4 - 11x^3 - 8x^2 + 6x + 4 \\ & x^5 + x^4 - 25x^3 + 21x^2 + 5x - 5 \\ & x^5 - 3x^4 - 11x^3 - 14x^2 + 23x + 10 \\ & x^5 - 9x^4 + 14x^3 + 28x^2 - 2x - 8 \\ & x^5 - 5x^4 + 6x^3 - 28x^2 + 5x - 15 \\ & x^5 + x^4 - 3x^3 - 9x^2 - 5x + 3 \\ & x^5 + x^4 - 2x^3 - 17x^2 + 3x + 4 \\ & x^5 - 3x^4 - 8x^3 + 13x^2 + 15x + 10 \\ & x^5 + 6x^4 + 9x^3 - 4x^2 - 37x + 20 \\ & x^5 - x^4 - 4x^3 - 10x^2 - 17x - 5 \\ & x^5 + 7x^4 + 20x^3 + 37x^2 + 35x + 10 \\ & x^5 + 2x^4 - x^3 - x^2 - 8x + 6 \\ & x^5 + 4x^4 - 5x^3 + 9x^2 - 4x + 3 \\ & x^5 + 3x^4 - 2x^3 - 7x^2 + x + 2 \\ & x^5 - 2x^4 - 8x^3 + 8x^2 - 9x + 2 \\ & x^5 - 7x^4 + 7x^3 + 18x^2 + 6x + 10 \\ & x^5 - 7x^4 + 13x^3 - 3x^2 - 24x + 16 \\ & x^5 - 2x^4 + 3x^3 - 7x^2 + 5x - 10 \\ & x^5 + 8x^4 + 11x^3 - 18x^2 + 12x - 8 \\ & x^5 - 4x^4 + 7x^2 - 4x + 2 \\ & x^5 + 4x^4 - x^3 + 7x^2 - 32x + 20 \\ & x^5 + x^4 - 6x^3 + 3x^2 + 14x - 10 \end{aligned}$$

$$\begin{aligned} & x^5 - 6x^4 + 12x^3 - 6x^2 - 9x + 9 \\ & x^5 - 4x^4 + x^3 + 6x^2 - x + 6 \\ & x^5 - x^4 - 20x^3 + 13x^2 - 21x + 4 \\ & x^5 - 7x^4 + 7x^3 + 25x^2 - 30x + 8 \\ & x^5 - x^4 + 5x^3 - 11x^2 + 7x - 15 \\ & x^5 - 14x^3 + 13x^2 - 15x + 3 \\ & x^5 + 5x^4 - 3x^3 - 20x^2 + 24x - 8 \\ & x^5 + 6x^4 + 7x^3 - x^2 + 18x + 5 \\ & x^5 + 6x^4 + 9x^3 + 14x^2 - 16x + 10 \\ & x^5 - 2x^4 + x^3 + 7x^2 - 12x + 9 \\ & x^5 + 5x^4 + 8x^3 + 14x^2 - 15 \\ & x^5 + 2x^4 - 6x^3 - 3x^2 + 16x - 16 \\ & x^5 - x^4 - 13x^3 - 6x^2 + 2x + 6 \\ & x^5 + 5x^4 + 12x^3 + 14x^2 + 8x + 5 \\ & x^5 - 3x^4 - 4x^3 + 6x^2 + 10x + 25 \\ & x^5 + 2x^4 - 7x^3 + 4x^2 + 15x - 12 \\ & x^5 - x^4 - 12x^3 + 26x^2 + 6x - 15 \\ & x^5 - x^4 + 4x^3 - 5x^2 + 3x - 6 \\ & x^5 + 6x^4 - x^3 - 21x^2 + 13x - 2 \\ & x^5 + 6x^4 + 6x^3 - 14x^2 - 19x - 5 \\ & x^5 + 3x^4 - 14x^3 - x^2 + 29x - 10 \\ & x^5 - 3x^4 - 2x^3 + 8x^2 - 3 \\ & x^5 - 4x^4 - 5x^3 - 8x^2 - 3x - 2 \\ & x^5 + 2x^4 - 25x^3 - 15x^2 + 40x + 25 \\ & x^5 - 3x^3 - 16x^2 - 7x - 20 \\ & x^5 - 5x^4 - 4x^3 - 2x^2 - 20x - 15 \\ & x^5 + x^4 - 13x^3 + 22x^2 + 35x + 10 \\ & x^5 - 6x^4 + 9x^3 - 19x^2 - 30x - 5 \\ & x^5 + 7x^4 + x^3 - 34x^2 + 20 \\ & x^5 - 3x^4 - 10x^3 - 8x^2 + 4x + 1 \\ & x^5 - x^4 - 11x^3 + 7x^2 + 12x - 20 \\ & x^5 - 7x^4 + 9x^3 + 8x^2 + 12x + 12 \\ & x^5 + 3x^4 - 14x^3 - 16x^2 - 12x + 3 \\ & x^5 + 9x^4 + 14x^3 - 28x^2 - 7x + 3 \end{aligned}$$

$$\begin{aligned} & x^5 - 2x^4 + 6x^3 + x^2 - x + 15 \\ & x^5 - 6x^4 + 11x^3 - 28x^2 + 7x - 10 \\ & x^5 - 2x^4 + 5x^3 - 6x^2 + 12x - 16 \\ & x^5 + 7x^4 + 15x^3 + 20x^2 - 10x - 25 \\ & x^5 - 4x^4 - 5x^3 + 11x^2 + 24x + 5 \\ & x^5 + 5x^4 - 5x^3 - 21x^2 - x + 1 \\ & x^5 - 2x^4 - 3x^3 + 13x^2 - 8x - 3 \\ & x^5 + 3x^4 - 8x^3 - 23x^2 + 2x + 10 \\ & x^5 - 2x^4 - 17x^3 - 7x^2 + 5x + 2 \\ & x^5 - x^4 - 12x^3 - 15x^2 + 25x - 6 \\ & x^5 + x^4 - 11x^3 + 5x^2 - 3x + 1 \\ & x^5 + 3x^4 + 2x^3 + 16x^2 - 15x + 5 \\ & x^5 + x^4 - 4x^3 + x^2 + 5x - 2 \\ & x^5 - 2x^4 - 11x^3 - 10x^2 + 16x + 12 \\ & x^5 + x^4 - 16x^3 - 6x^2 - 12x + 8 \\ & x^5 + 2x^4 + 10x^3 + 8x^2 + 21x - 10 \\ & x^5 - 4x^4 + 10x^3 - 9x^2 + 4x + 10 \\ & x^5 - 3x^4 + 10x^3 - 17x^2 + 21x - 20 \\ & x^5 - 6x^4 + x^3 + 27x^2 + 6x - 9 \\ & x^5 - 9x^4 + 25x^3 - 29x^2 + 29x - 5 \\ & x^5 + x^4 + x^3 + 3x^2 - 12x - 4 \\ & x^5 + 4x^4 - 2x^3 - 4x^2 - 8 \\ & x^5 + 4x^4 + 6x^3 + 8x^2 + 5x + 12 \\ & x^5 + 5x^4 + 9x^3 + 2x^2 - 12x - 12 \\ & x^5 - 9x^4 + 19x^3 + 4x^2 + 4x + 1 \\ & x^5 - 7x^4 + x^3 + 28x^2 + 24x + 8 \\ & x^5 + 7x^3 + 3x^2 + 12x + 9 \\ & x^5 + 8x^4 + 20x^3 + 12x^2 - 15x - 15 \\ & x^5 - 10x^4 + 22x^3 + 11x^2 + 16x + 16 \\ & x^5 + 6x^4 + 15x^3 + 31x^2 + 30x + 5 \\ & x^5 + 4x^4 + 7x^3 + x^2 - 20x + 10 \\ & x^5 - 4x^4 - 11x^3 + 17x^2 + 13x + 2 \\ & x^5 - 3x^4 - 3x^3 + 4x + 4 \\ & x^5 - 5x^4 + 10x^3 - 4x^2 - 12x + 15 \end{aligned}$$

$$\begin{aligned}
& x^5 + 7x^4 + 9x^3 + 5x^2 - 4x + 2 \\
& x^5 - 4x^4 + x^3 - 4x^2 + 16x - 4 \\
& x^5 - 5x^3 + 8x^2 - 3x - 10 \\
& x^5 + 7x^4 + 19x^3 + 28x^2 + 18x + 4 \\
& x^5 + 3x^4 - 4x^3 - 4x^2 - 2x - 1 \\
& x^5 - 4x^3 + 10x^2 - 9x + 5 \\
& x^5 + 5x^4 - 5x^3 + 29x - 20 \\
& x^5 + 6x^4 + 10x^3 + 11x^2 + x - 1 \\
& x^5 - 9x^2 - 7x - 15 \\
& x^5 - 8x^4 + 19x^3 - 17x^2 + 10x + 10 \\
& x^5 + x^4 - 4x^3 - 12x^2 - 13x + 3 \\
& x^5 - 4x^4 + 3x^3 - 25x^2 - 10x - 25 \\
& x^5 - 7x^4 + 11x^3 + x^2 + 14x - 10 \\
& x^5 - 9x^4 + 21x^3 + 5x^2 - 40x - 20 \\
& x^5 + x^4 - 2x^2 - 14x + 8 \\
& x^5 + 3x^4 - 5x^3 - 11x^2 - 9x + 15 \\
& x^5 - 2x^4 - 3x^3 + 15x^2 - 20x + 25 \\
& x^5 - 25x^3 - 14x^2 - 21x - 4 \\
& x^5 - x^4 - 10x^3 + 12x + 16 \\
& x^5 - 3x^4 - 5x^3 + 5x^2 + 6x + 2 \\
& x^5 + 2x^4 - 6x^3 + 9x^2 - 2x + 2 \\
& x^5 + 6x^4 + 3x^3 - 14x^2 + 17x - 4 \\
& x^5 + 7x^4 + 16x^3 + 23x^2 + 18x + 10 \\
& x^5 + 2x^4 + 5x^3 + 9x^2 + 6x + 9 \\
& x^5 - 4x^4 - 14x^2 - 21x + 5 \\
& x^5 + 2x^4 - 12x^3 - 12x^2 + 5x + 25
\end{aligned}$$

$$\begin{aligned}
& x^5 + 4x^4 - 5x^3 - 11x^2 + 18x - 9 \\
& x^5 + 4x^4 - x^3 + 9x^2 + 3x + 2 \\
& x^5 - 5x^4 + 7x^3 - x^2 - 3x + 5 \\
& x^5 + x^4 + 3x^3 - 3x^2 + 2x - 10 \\
& x^5 - 4x^4 - 7x^3 + 11x^2 + 22x - 5 \\
& x^5 + 8x^4 + 9x^3 - 29x^2 - 7x + 6 \\
& x^5 - 2x^4 + x^3 - 8x^2 - 24x - 8 \\
& x^5 - 7x^4 + 10x^3 + 6x^2 + 6x + 9 \\
& x^5 - x^4 - 7x^3 - 24x^2 - 12x - 20 \\
& x^5 + 3x^4 - 8x^3 + 22x^2 - 18x + 4 \\
& x^5 - 4x^4 - 9x^3 + 16x^2 + 20x + 20 \\
& x^5 - x^4 + 9x^3 + 16x + 20 \\
& x^5 + 4x^4 - 5x^3 - 14x^2 + 27x - 12 \\
& x^5 + 3x^4 - 10x^3 - 27x^2 - 18x - 4 \\
& x^5 + 2x^4 - 13x^3 - 3x^2 + 16x - 5 \\
& x^5 + 2x^4 + 9x^3 + 7x^2 + 15x - 4 \\
& x^5 + x^4 - 5x^3 + 2x^2 + 12x + 4 \\
& x^5 + 4x^4 - 2x^3 + 5x - 3 \\
& x^5 + x^4 + 8x^3 + 10x^2 + 35x + 25 \\
& x^5 - 9x^4 + 20x^3 + 7x^2 - 28x - 12 \\
& x^5 + 7x^4 + 19x^3 + 21x^2 - 16 \\
& x^5 + 3x^4 - 8x^3 - 16x^2 + 24x + 5 \\
& x^5 + 6x^4 + x^3 - 21x^2 - x + 4 \\
& x^5 + 4x^4 - 11x^3 - 3x^2 + 8x + 3 \\
& x^5 - 2x^4 - 11x^3 + 6x^2 + 9x + 2 \\
& x^5 + x^4 - 4x^3 + 10x^2 - 8x + 5
\end{aligned}$$

$$\begin{aligned}
& x^5 - 2x^4 - 6x^3 + 19x^2 - 3x - 15 \\
& x^5 - 2x^4 - 16x^3 + 15x^2 + 4x - 4 \\
& x^5 - 5x^4 + x^3 - 19x^2 - 6x - 12 \\
& x^5 - 5x^4 + 3x^3 + 4x^2 + 6x + 6 \\
& x^5 - 5x^4 + 6x^3 - 10x^2 + 21x - 5 \\
& x^5 + 4x^4 + 6x^3 + 10x^2 + 7x + 5 \\
& x^5 + 2x^4 - x^3 + 18x^2 + 18x + 4 \\
& x^5 + 3x^4 - x^3 + x^2 - 21x + 15 \\
& x^5 - x^3 + 3x^2 - 21x + 20 \\
& x^5 - 2x^4 - 21x^3 + 21x^2 + 2x + 5 \\
& x^5 - 9x^4 + 21x^3 - 8x^2 + 18x + 5 \\
& x^5 - 3x^4 - 11x^3 + 16x^2 + 6x - 8 \\
& x^5 - x^4 + 2x^3 - 6x^2 - 3x - 9 \\
& x^5 - x^4 - 17x^3 + 11x^2 - 14x - 10 \\
& x^5 - x^4 - 15x^2 - 17x - 10 \\
& x^5 - 5x^4 + 9x^3 - 23x^2 + 35x - 15 \\
& x^5 + 8x^4 + 17x^3 + 3x^2 - 24x + 4 \\
& x^5 - 8x^4 + 17x^3 - 21x^2 + 10x + 15 \\
& x^5 + 2x^4 - 7x^3 + 7x^2 - 4x - 1 \\
& x^5 - 10x^4 + 25x^3 - 2x^2 + 9x - 2 \\
& x^5 + x^4 - 2x^3 - 15x - 25 \\
& x^5 - 9x^4 + 18x^3 + 17x^2 - 28x - 20 \\
& x^5 - 2x^4 - 2x^3 + 5x^2 - 6x - 8 \\
& x^5 + 9x^4 + 30x^3 + 47x^2 + 33x + 10 \\
& x^5 + x^4 - 5x^3 + 11x^2 - 9x + 5 \\
& x^5 - 4x^4 + 9x^3 - 14x^2 + 15x - 6
\end{aligned}$$

2.2 일계수가 아닌 오차식

$$\begin{aligned}
& 8x^5 - 8x^4 + 16x^3 + x^2 + x + 4 \\
& 4x^5 + 17x^4 - 10x^3 - 42x^2 + 19x + 10 \\
& 8x^5 - 4x^4 + 4x^3 + 4x^2 - 12x + 15 \\
& 5x^5 - 20x^4 - 54x^3 - 25x^2 + 16 \\
& 2x^5 + 2x^3 + 13x^2 - 11x + 15 \\
& 15x^5 - 8x^4 + 37x^2 - 11x - 3 \\
& 5x^5 - 22x^3 + 25x^2 - 15x + 15 \\
& 2x^5 - 3x^4 - 24x^3 + 9x^2 + 17x - 6 \\
& 9x^5 - 27x^4 + 11x^3 + 21x^2 - 15x - 9 \\
& 3x^5 - x^4 + 10x^3 - 12x^2 - 17x - 3 \\
& 20x^5 - 2x^4 + 17x^3 + 7x^2 - 7x + 1 \\
& 20x^5 - 16x^4 - 2x^3 + 3x^2 - 2 \\
& 4x^5 - 14x^4 + 17x^3 - 6x^2 + 6x - 9 \\
& 4x^5 - 3x^4 + 9x^3 + 31x^2 - 1 \\
& 5x^5 + 16x^4 - 7x^3 - x^2 + 3x - 2 \\
& 2x^5 + 3x^4 + 3x^3 - 2x^2 - 9x + 5 \\
& 10x^5 - 6x^4 + 18x^3 - 21x^2 + 17x - 12 \\
& 4x^5 + 11x^4 - 28x^3 - 3x^2 - 6x - 8
\end{aligned}$$

$$\begin{aligned}
& 25x^5 - 10x^4 - 23x^3 - 20x^2 + 15x + 12 \\
& 20x^5 - 7x^4 - 5x^3 - 3x^2 + 5x - 2 \\
& 4x^5 + 9x^4 - 3x^3 + 9x^2 + 4x - 10 \\
& 20x^5 + 3x^4 + 27x^3 + 12x^2 + 25x + 12 \\
& 20x^5 - 5x^4 - 61x^3 + 5x^2 + 21x - 4 \\
& 9x^5 - 6x^4 + 4x^3 + 11x^2 - 16x + 10 \\
& 20x^5 + 21x^4 + 44x^3 + 31x^2 + 28x + 10 \\
& 4x^5 + 11x^4 - 13x^3 - 15x^2 + 18x - 12 \\
& 25x^5 - 15x^4 + 42x^3 - 3x^2 + 13x + 10 \\
& 5x^5 - 9x^4 + 10x^3 + 34x^2 - 4x - 15 \\
& 6x^5 + 9x^4 - 13x^3 + 14x^2 - 9x + 3 \\
& 2x^5 - 14x^4 + 14x^3 + 11x^2 + 5x + 3 \\
& 10x^5 - 25x^3 + 7x^2 + 3x - 1 \\
& 3x^5 + 5x^4 - 7x^3 - 7x^2 - x + 3 \\
& 2x^5 + 9x^3 + x^2 + 13x + 5 \\
& 6x^5 + 23x^4 + x^3 - 18x^2 + 26x - 8 \\
& 20x^5 - 45x^4 + 6x^3 + 40x^2 - 22x - 15 \\
& 5x^5 - 20x^4 - 5x^3 - 23x^2 + 2x + 6
\end{aligned}$$

$$\begin{aligned}
& 6x^5 - 27x^3 - 17x^2 + 23x + 20 \\
& 12x^5 - 15x^4 + 24x^3 - 4x^2 + 7x + 6 \\
& 9x^5 - 21x^4 + 34x^3 - 43x^2 + 23x - 20 \\
& 3x^5 + 5x^4 - 4x^3 + 7x^2 - 8x + 6 \\
& 6x^5 + 9x^4 - 20x^3 + 4x^2 + 9x - 10 \\
& 3x^5 + x^4 + 14x^3 - 6x^2 + 14x - 8 \\
& 15x^5 + 11x^4 - 21x^3 - 2x^2 - 6x - 6 \\
& 2x^5 + 6x^4 - 19x^3 - 31x^2 - 27x - 15 \\
& 20x^5 + 31x^4 + 25x^3 - 5x^2 - 10x - 6 \\
& 8x^5 + 10x^4 + 14x^3 - 7x^2 + 18x - 3 \\
& 4x^5 - 11x^4 - 13x^3 - 7x^2 + 10x - 5 \\
& 15x^5 - 10x^4 - 13x^3 + 5x^2 + 22x - 15 \\
& 3x^5 - 2x^4 + 11x^3 + 3x^2 + 6x + 9 \\
& 10x^5 - 10x^4 + 23x^3 - 21x^2 - 5x + 10 \\
& 5x^5 + 9x^4 + 20x^3 + 22x^2 - 8x - 8 \\
& 2x^5 - 5x^4 - 22x^3 + 34x^2 - 29x + 12 \\
& 6x^5 + 14x^4 + 29x^3 + 23x^2 + 21x - 5 \\
& 3x^5 + 6x^4 + 7x^3 - 27x^2 + 20x - 5
\end{aligned}$$

$12x^5 - 28x^4 + 5x^3 - 4x^2 - 3x - 9$	$16x^5 + 12x^4 + 26x^3 - 9x^2 - 3x - 20$	$2x^5 - 10x^4 + x^3 + 7x^2 - 6x + 12$
$5x^5 + 15x^4 + 38x^3 + 46x^2 + 30x + 9$	$6x^5 - 9x^4 - 25x^3 - 11x^2 + 2x + 2$	$4x^5 - 17x^4 - 6x^3 - 15x^2 - 10x - 4$
$9x^5 + 12x^4 - 12x^3 + 10x^2 - 5x + 2$	$10x^5 + 18x^4 + 21x^3 - 11x^2 - 12x - 15$	$10x^5 + 19x^4 + 8x^3 - 7x^2 - 4x - 2$
$3x^5 - 3x^4 + 13x^3 - 8x - 10$	$20x^5 - 12x^4 + 3x^3 - 17x^2 - 9x - 6$	$12x^5 + 16x^4 - 15x^3 - 9x^2 + 12x - 2$
$5x^5 - 25x^4 + 3x^3 - 12x^2 + 8x - 12$	$16x^5 - 24x^4 + 9x^3 - 33x^2 - 5x + 12$	$8x^5 - 20x^4 - 10x^3 + 16x^2 + 13x + 3$
$10x^5 + 7x^4 - 38x^2 - 8x + 8$	$5x^5 + 9x^4 + 3x^3 + 3x^2 - x - 3$	$20x^5 - 40x^4 + 4x^3 + 31x^2 - 15x - 12$
$5x^5 + 16x^4 + 12x^3 + 17x^2 - 5x + 15$	$6x^5 - x^4 - 21x^3 + 15x^2 - 12x - 5$	$9x^5 - 3x^4 + 3x^3 + 4x^2 + 2x + 3$
$20x^5 + 33x^4 - 11x^3 - 2x^2 + 12x - 16$	$4x^5 + 6x^4 - 6x^3 - 13x^2 - 3x + 3$	$9x^5 + 3x^4 - 11x^3 + 36x^2 - 20x + 16$
$5x^5 + 18x^4 + 3x^3 - 25x^2 + 12x - 5$	$6x^5 - 7x^4 + 6x^3 - 9x^2 + x - 6$	$10x^5 - 13x^4 + 8x^3 - 15x^2 - x - 10$
$3x^5 + 7x^4 + 11x^3 + 2x^2 + 5x - 20$	$12x^5 + 20x^4 - 5x^3 + x^2 - 3x - 12$	$12x^5 - 5x^4 - 30x^3 - 8x^2 + 11x + 12$
$4x^5 + 11x^4 - 4x^3 - 23x^2 + 5x + 5$	$3x^5 + 12x^4 - 14x^3 - 14x^2 + 15x - 10$	$20x^5 + 5x^4 - 21x^3 - 9x^2 + 4x + 4$
$10x^5 - 31x^4 + 19x^3 + 15x^2 - 15x + 10$	$16x^5 + 8x^4 - 39x^3 - 10x^2 + 5x - 4$	$3x^5 - 4x^4 - 9x^3 + 6x^2 + x - 6$
$3x^5 + 11x^4 - 4x^3 - 20x^2 + 1$	$3x^5 + 6x^4 + 8x^3 + 19x^2 + 4x + 10$	$10x^5 - 26x^4 - 19x^2 - 7x - 12$
$20x^5 - 12x^4 - 6x^3 + 21x^2 - 11x + 3$	$15x^5 - 5x^4 - 17x^3 - 7x^2 + 2$	$5x^5 + 21x^4 + x^3 - 39x^2 - 15x + 5$
$15x^5 + 5x^4 - 6x^3 + 27x^2 - 17x + 12$	$12x^5 - 24x^4 + 17x^3 - 17x^2 - 13x + 15$	$4x^5 + 15x^4 + 5x^2 + 50x + 25$
$12x^5 - 11x^4 - 10x^2 - 50x - 25$	$3x^5 - 11x^4 + 19x^3 - 17x^2 + 9x + 3$	$3x^5 + 3x^4 + 4x^2 - 3x + 1$
$4x^5 + 2x^4 - 25x^3 + 3x^2 + 11x + 20$	$8x^5 - 10x^4 - 16x^3 - 29x^2 - 4x + 6$	$2x^5 - 3x^4 - 13x^3 + 13x^2 + 15x + 10$
$5x^5 + 4x^4 + 5x^3 + 7x^2 + 3$	$20x^5 - 7x^4 - 48x^3 + 15x^2 + 22x - 5$	$5x^5 - 11x^4 + 4x^3 + 32x^2 - 28x + 16$
$3x^5 - 15x^4 + 7x^3 + 8x^2 + 12x + 20$	$5x^5 + 23x^4 + 6x^3 - 38x^2 - 12x + 8$	$20x^5 + 6x^4 - 31x^3 + 7x^2 + 7x - 5$
$8x^5 + 12x^4 + 14x^3 + 5x^2 + 8x + 16$	$4x^5 + 11x^4 + 10x^3 + 24x^2 + 12x + 16$	$12x^5 + 6x^4 + 10x^3 + 13x^2 + 7x + 1$
$12x^5 - 10x^4 - 16x^3 - 17x^2 - 32x - 15$	$25x^5 + 10x^4 - 30x^3 + 3x^2 + 5x - 1$	$5x^5 + 4x^4 + 11x^3 - 25x^2 + 9x - 10$
$4x^5 - 19x^4 + 13x^3 - 18x^2 + 5x - 6$	$9x^5 - 3x^4 + 6x^3 + 5x^2 + 3x - 4$	$6x^5 - 8x^4 - 19x^3 + 8x^2 + 8$
$16x^5 - 20x^4 - 24x^3 + 9x^2 + 25x + 4$	$15x^5 + 10x^4 - 3x^3 + 18x^2 - 5x + 4$	$15x^5 + 17x^4 + 15x^3 + 30x^2 + 2x + 12$
$15x^5 - 13x^4 - 26x^3 - 18x^2 - 24x - 9$	$5x^5 - 24x^4 + 24x^3 - 16x^2 + 25x - 5$	$20x^5 + 25x^4 + 35x^3 + 11x^2 + 9x - 2$
$15x^5 + 12x^4 - 18x^3 - 40x^2 + 5x + 25$	$2x^5 + 3x^4 - 11x^3 - 13x^2 + 15x + 12$	$10x^5 + 10x^4 - 9x^3 + 10x^2 + 16x + 15$
$6x^5 - 11x^3 - 31x^2 - 31x - 10$	$6x^5 + 9x^4 - 16x^3 + 12x^2 + 9x - 2$	$8x^5 - 6x^4 - 25x^3 + 17x^2 + 21x - 10$
$3x^5 + 11x^4 - 25x^3 + 28x^2 - 32x + 12$	$12x^5 + 22x^4 + 29x^3 + 21x^2 + 13x + 3$	$4x^5 - 9x^4 - 10x^3 - 14x^2 + 3x + 2$
$12x^5 - 4x^4 - 23x^3 + 13x^2 + x - 20$	$6x^5 - 6x^4 - 9x^3 + 5x^2 + 3x - 1$	$8x^5 - 14x^4 + 17x^3 - 32x^2 + 29x - 10$
$4x^5 + 3x^4 + 15x^3 + 21x^2 + 18x + 9$	$10x^5 - 30x^4 + 5x^3 + 23x^2 + 9x + 1$	$4x^5 + 6x^4 + 5x^3 + 6x + 4$
$8x^5 - 22x^4 - 2x^3 + 11x^2 - 31x - 20$	$20x^5 + 2x^4 - 47x^3 - 22x^2 + 11x + 12$	$8x^5 + 2x^4 - 17x^3 + 6x^2 + 8x - 5$
$9x^5 + 3x^4 + 6x^3 + 20x^2 - 15x + 25$	$25x^5 - 30x^4 + 10x^3 + 28x^2 - 7x - 5$	$10x^5 + 22x^4 + 27x^3 + 27x^2 + 28x + 12$
$20x^5 + 7x^4 + 6x^3 - x^2 - 15x - 25$	$10x^5 + 18x^4 + 37x^3 + 18x^2 + 4x - 15$	$4x^5 + 20x^4 - 11x^3 + 5x^2 - 20x - 25$
$10x^5 - 8x^4 + 7x^3 - 14x^2 + x - 5$	$25x^5 - 30x^4 - 7x^2 + 14x - 8$	$3x^5 + 4x^4 - 18x^3 - 21x^2 + 15x + 5$
$2x^5 + 3x^4 - 13x^3 - 24x^2 - 13x - 15$	$2x^5 - 3x^4 - 3x^3 - 11x^2 - 14x + 5$	$5x^5 + 13x^4 - 2x^3 - 10x^2 - 16x - 5$
$10x^5 - 10x^4 - 18x^3 - 7x^2 - 4x - 1$	$15x^5 - 11x^4 - 9x^3 + 16x^2 - 2x - 4$	$5x^5 + 16x^4 + 27x^3 + 21x^2 + 17x + 4$
$6x^5 + 4x^4 + 9x^3 + 6x^2 + 17x + 10$	$3x^5 - x^4 - 11x^3 + 16x^2 - 8x + 4$	$8x^5 + 14x^4 - 8x^3 + 5x^2 + 8x - 2$
$4x^5 + 18x^4 + 12x^3 - 15x^2 + 7x - 15$	$2x^5 + 9x^4 + 16x^3 + 20x^2 + 2x - 4$	$6x^5 - 10x^4 - 11x^3 + 30x^2 - 2x - 15$
$16x^5 + 16x^4 + 35x^3 - 6x^2 - 25$	$4x^5 - 13x^4 - 18x^3 + 16x^2 + 3x - 2$	$10x^5 + 5x^4 + 11x^3 - 13x^2 - 14x - 12$
$15x^5 - x^4 - 9x^3 - 1$	$15x^5 + 11x^4 - 3x^3 - 23x^2 - 14x - 6$	$5x^5 + 10x^4 - 45x^3 + 8x^2 + 19x + 10$
$15x^5 + 24x^4 + 43x^3 + 12x^2 + 3x - 20$	$4x^5 - x^4 - 9x^3 - 17x^2 - 4x - 15$	$5x^5 + 15x^4 - 8x^3 + x^2 + 16x + 6$
$25x^5 + 30x^4 - 5x^3 + 26x^2 - 4x + 8$	$5x^5 + 12x^4 - 38x^3 - x^2 + 8x + 20$	$12x^5 + 17x^4 + 10x^3 + 20x^2 - 4x - 16$
$8x^5 - 30x^4 + 33x^3 - 12x^2 - 10x + 8$	$15x^5 + 6x^4 - 43x^3 - 9x^2 + 25$	$5x^5 - 28x^4 + 9x^3 - 18x^2 + 12x + 8$

3. 육차식의 인수분해

3.1 일계수 육차식 1형

$$\begin{aligned} & x^6 + 3x^5 + 9x^4 + 14x^3 + 9x^2 + 19x - 15 \\ & x^6 + 8x^5 + 18x^4 + 5x^3 - 11x^2 - 3x - 4 \\ & x^6 - 10x^5 + 24x^4 + 4x^3 + 5x^2 + 4x - 12 \\ & \quad x^6 + 9x^4 + 4x^3 + 20x^2 + 17x + 3 \\ & x^6 + 3x^5 - 5x^4 + 12x^3 + 18x^2 + x - 2 \\ & \quad x^6 + 3x^5 - 16x^4 + 11x^3 - 10x + 5 \\ & x^6 - 4x^5 + 5x^4 - 9x^3 - 6x^2 - 11x - 6 \\ & \quad x^6 - x^5 - 17x^3 - 6x^2 - 10x + 12 \\ & \quad x^6 - 3x^5 - 19x^4 + 11x^3 + 50x^2 - 20 \\ & \quad x^6 + 5x^5 + 6x^4 + 15x^3 - 16x^2 - 25 \\ & x^6 - 3x^5 - 12x^4 + 29x^3 + 16x^2 - 30x - 15 \\ & \quad x^6 - 4x^4 - 16x^3 - 8x^2 - 4x + 15 \\ & \quad x^6 - 3x^5 - 3x^4 - 3x^3 - 10x^2 - 10 \\ & \quad x^6 + 4x^5 + 4x^4 + 3x^3 - 4x^2 + 2x - 4 \\ & \quad x^6 - 17x^3 - 20x^2 - 4x + 16 \\ & x^6 + 7x^5 + 16x^4 + 4x^3 - 31x^2 - 23x + 10 \\ & \quad x^6 + 9x^5 + 15x^4 - 18x^3 + 6x^2 + 10x - 8 \\ & \quad x^6 - 8x^4 + 22x^3 - 5x^2 - 20x + 25 \\ & \quad x^6 + x^5 - 13x^4 + 7x^3 + 11x^2 - 27x + 15 \\ & x^6 + 3x^5 - 18x^4 - 23x^3 + 30x^2 + 22x - 5 \\ & \quad x^6 - 9x^5 + 12x^4 + 35x^3 + 21x^2 + 14x - 8 \\ & \quad x^6 + 4x^5 + 9x^4 + 7x^3 - 6x^2 - 21x - 20 \\ & \quad x^6 - 5x^5 + 8x^4 - 2x^3 - 4x^2 - 5x - 2 \\ & \quad x^6 - x^5 - 5x^4 - 7x^3 - 23x^2 - 31x - 15 \\ & x^6 - 9x^5 + 14x^4 + 34x^3 - 20x^2 - 16x + 8 \\ & \quad x^6 + 2x^5 - 15x^4 + 42x^3 - 23x^2 + 1 \\ & \quad x^6 + 2x^5 - 16x^4 - 27x^3 - 28x^2 - 7x + 5 \\ & x^6 + 2x^5 - 13x^4 - 21x^3 - 14x^2 - 9x + 12 \\ & \quad x^6 + 4x^5 + 2x^4 - 3x^3 - 6x^2 + 26x - 20 \\ & \quad x^6 - 8x^5 + 16x^4 - 14x^3 - x^2 - 5x + 2 \\ & x^6 - 3x^5 + 2x^4 - 16x^3 + 15x^2 - 10x + 25 \\ & \quad x^6 + 4x^5 + x^4 + 3x^3 + 20x^2 - 14x + 20 \\ & x^6 + 6x^5 + 10x^4 - 6x^3 - 30x^2 - 10x + 25 \\ & \quad x^6 - 25x^4 - 34x^3 - 16x^2 + 9 \end{aligned}$$

$$\begin{aligned} & x^6 - 4x^5 + x^4 - 24x^3 + 29x^2 + 16x - 16 \\ & \quad x^6 + 3x^5 - 3x^4 - 15x^3 - 3x^2 + 21x + 5 \\ & x^6 + 8x^5 + 18x^4 + 5x^3 - 4x^2 + 17x - 15 \\ & \quad x^6 + 8x^5 + 16x^4 + 8x^3 + 23x^2 + 16 \\ & \quad x^6 - 4x^5 - 3x^4 + 14x^3 - x^2 - 6x - 8 \\ & \quad x^6 - 3x^5 - 6x^4 + x^3 + 13x^2 + 6x + 12 \\ & \quad x^6 - x^4 - 10x^3 + x^2 + 2x + 15 \\ & \quad x^6 + 6x^5 + 13x^4 + 13x^3 - 4x - 2 \\ & \quad x^6 - 6x^5 + 9x^4 + x^3 - 28x^2 - 25x - 6 \\ & x^6 - x^5 - 22x^4 + 19x^3 - 21x^2 + 8x - 4 \\ & \quad x^6 - 9x^5 + 16x^4 + 17x^3 + 4x^2 + 2x - 1 \\ & \quad x^6 + 5x^5 + 9x^4 + 14x^3 - 3x^2 + 3x - 9 \\ & x^6 - 3x^5 - 17x^4 + 13x^3 + 17x^2 - 19x + 5 \\ & \quad x^6 + 7x^5 + 6x^4 - 8x^3 + 28x^2 - 12x + 8 \\ & \quad x^6 - 6x^5 + 6x^4 - 11x^3 + 18x^2 - 3x + 9 \\ & \quad x^6 - 7x^5 + 11x^4 - 10x^3 + 22x^2 - x + 4 \\ & \quad x^6 - 6x^5 + 9x^4 - 10x^3 - 18x^2 + 4x - 15 \\ & \quad x^6 - 10x^5 + 27x^4 - 5x^3 - 28x^2 + 7x + 6 \\ & \quad x^6 + 3x^5 + 4x^4 + 2x^3 + 12x^2 + 5x - 12 \\ & \quad x^6 - 4x^5 + 2x^4 - 2x^3 - 15x^2 + 2x - 8 \\ & \quad x^6 + 7x^4 + 9x^3 + 12x^2 + 32x + 20 \\ & x^6 + 8x^5 + 19x^4 + 19x^3 - 24x^2 + 15x - 10 \\ & \quad x^6 - 9x^5 + 30x^4 - 39x^3 - x^2 + 30x + 8 \\ & \quad x^6 - 3x^5 - x^4 + 8x^3 - 4x^2 - 9x - 2 \\ & \quad x^6 + x^5 - 22x^4 + 14x^3 - 9x^2 + 5x + 2 \\ & \quad x^6 - 6x^5 + 5x^4 + 6x^3 + 18x^2 + 12x + 9 \\ & \quad x^6 - 3x^4 + 14x^3 + 8x^2 + 24x + 16 \\ & \quad x^6 - x^5 + 7x^4 - 6x^3 + 8x^2 - 4x - 16 \\ & x^6 - 2x^5 - 8x^4 + 31x^3 - 32x^2 + 12x + 10 \\ & \quad x^6 - 4x^5 - 9x^4 + 27x^3 - 16x^2 + 7x - 2 \\ & \quad x^6 - 6x^5 + 3x^4 + 10x^3 - 20x^2 - 6x + 15 \\ & \quad x^6 - x^5 - 17x^4 + 24x^3 - x^2 + 2x + 2 \\ & \quad x^6 + 9x^5 + 25x^4 + 18x^3 - 6x^2 + 10x - 8 \\ & \quad x^6 + 2x^5 - 11x^4 + 17x^3 - 2x^2 - 5x + 6 \end{aligned}$$

$$\begin{aligned}
& x^6 - 3x^5 - x^4 + 30x^3 - 74x^2 + 84x - 40 \\
& x^6 + x^5 - 22x^4 - x^3 + 83x^2 + 16x - 60 \\
& x^6 + 3x^5 - 13x^4 - 30x^3 + 13x^2 + 3x - 1 \\
& x^6 - 4x^5 - 21x^4 + 72x^3 + 31x^2 - 28x - 6 \\
& x^6 - 6x^5 - 4x^4 + 60x^3 - 92x^2 + 6x + 5 \\
& x^6 + 6x^5 + 7x^4 + 12x^3 + 49x^2 - 60x - 50 \\
& x^6 - 8x^5 + 22x^4 - 48x^3 + 37x^2 - 32x - 20 \\
& x^6 - 4x^5 + 11x^4 - 31x^3 + 26x^2 - 55x - 20 \\
& x^6 - 4x^5 - 20x^4 + 97x^3 - 66x^2 - 28x + 24 \\
& x^6 - 5x^5 - 8x^4 + 17x^3 + 89x^2 + 58x + 8 \\
& x^6 - 9x^5 + 24x^4 - 11x^3 - 49x^2 + 74x + 60 \\
& x^6 - 12x^5 + 49x^4 - 75x^3 + 10x^2 + 57x + 10 \\
& x^6 + 10x^5 + 32x^4 + 24x^3 - 48x^2 - 70x - 15 \\
& x^6 - x^5 - 10x^4 - 13x^3 - 26x^2 + 15x + 9 \\
& x^6 + 5x^5 + 8x^4 - x^3 - 29x^2 - 44x - 30 \\
& x^6 + 7x^5 + 12x^4 - x^3 - 44x^2 - 33x - 5 \\
& x^6 + 9x^5 + 12x^4 - 55x^3 - 84x^2 + 9x + 27 \\
& x^6 - 3x^5 - 12x^4 + 29x^3 + 3x^2 - 18x - 4 \\
& x^6 - 5x^5 + x^4 + 3x^3 + 22x^2 + 22x + 4 \\
& x^6 + 7x^5 - 55x^3 - 7x^2 + 54x - 18 \\
& x^6 + 5x^5 + 13x^4 + 10x^3 - 23x^2 - 75x - 75 \\
& x^6 + 8x^5 + 23x^4 + 42x^3 + 45x^2 - 26x - 30 \\
& x^6 - x^5 - 13x^4 + 46x^3 - 61x^2 + 47x - 15 \\
& x^6 - 14x^5 + 67x^4 - 117x^3 + 22x^2 + 55x + 10 \\
& x^6 - 4x^5 - x^4 + 12x^3 - x^2 - 8x - 2 \\
& x^6 + 10x^5 + 27x^4 + 12x^3 - 18x^2 - 28x + 16 \\
& x^6 + x^5 + 3x^4 + 23x^3 - 17x^2 + 69x - 20 \\
& x^6 - 2x^5 + 5x^4 - 12x^3 + 19x^2 - 50x - 25 \\
& x^6 + 7x^5 + 4x^4 - 45x^3 - 48x^2 + 27x + 27 \\
& x^6 + x^5 - 6x^4 - 7x^3 - 9x^2 - 8x - 2 \\
& x^6 + 9x^5 + 34x^4 + 69x^3 + 58x^2 - 15x - 75 \\
& x^6 + x^5 - 35x^4 - 56x^3 + 145x^2 + 55x - 75 \\
& x^6 - 2x^5 + 2x^4 - 15x^3 - 8x^2 - 8x - 40 \\
& x^6 + 2x^5 - 7x^4 - 7x^3 + 16x^2 + 39x - 60 \\
& x^6 - 8x^5 + 14x^4 + 26x^3 - 70x^2 - 20x + 75 \\
& x^6 + 6x^5 - 4x^4 - 18x^3 + 118x^2 - 48x + 5 \\
& x^6 - x^5 - 13x^4 + 20x^3 + 25x^2 - 51x + 15 \\
& x^6 + x^5 - 10x^4 - 11x^3 + 22x^2 + 17x - 15 \\
& x^6 - 14x^5 + 63x^4 - 78x^3 - 67x^2 + 36x - 4 \\
& x^6 - 5x^5 - 9x^4 + 15x^3 + 41x^2 + 45x + 20 \\
& x^6 + 5x^5 - 14x^4 - 51x^3 + 14x^2 + 25x + 5 \\
& x^6 - 4x^5 + x^4 - 12x^3 - 2x^2 - 16x - 8
\end{aligned}$$

$$\begin{aligned}
& x^6 - 8x^5 + 8x^4 + 52x^3 - 58x^2 - 110x + 25 \\
& x^6 + 6x^5 - 2x^4 - 36x^3 + 22x^2 + 18x - 5 \\
& x^6 + 2x^5 - 9x^4 - 41x^2 - 118x - 60 \\
& x^6 + 2x^5 - 16x^4 - 24x^3 + 130x - 75 \\
& x^6 - 9x^5 + 29x^4 - 46x^3 + 30x^2 + 28x - 24 \\
& x^6 + 2x^5 - 21x^4 - 18x^3 + 84x^2 - 8x - 32 \\
& x^6 - 3x^5 + 5x^4 + 9x^3 - 47x^2 + 105x - 100 \\
& x^6 - 7x^5 + 7x^4 + 39x^3 - 98x^2 + 38x + 40 \\
& x^6 + 2x^5 - 5x^4 + 10x^3 - 21x^2 + 38x - 30 \\
& x^6 - 8x^5 + 26x^4 - 42x^3 + 31x^2 - 2x - 10 \\
& x^6 - x^5 - 14x^4 + 32x^3 - 52x^2 + 36x - 8 \\
& x^6 - x^5 - 18x^4 + 11x^3 + 66x^2 + 35x + 5 \\
& x^6 + 4x^5 + 14x^4 + 36x^3 + 70x^2 + 100x + 125 \\
& x^6 - 7x^5 + 20x^4 - 27x^3 - 11x^2 + 70x - 100 \\
& x^6 + 8x^5 + 13x^4 - 20x^3 - 36x^2 + 8x + 12 \\
& x^6 - x^5 - 7x^4 + 15x^3 - 61x^2 + 13x + 10 \\
& x^6 + 9x^5 + 9x^4 - 67x^3 - 35x^2 + 185x - 100 \\
& x^6 - 3x^5 - 32x^4 + 101x^3 + 72x^2 - 91x + 15 \\
& x^6 - 5x^5 - 13x^4 + 38x^3 + 131x^2 + 43x - 15 \\
& x^6 - 3x^5 - 12x^4 + 14x^3 + 73x^2 + 17x - 10 \\
& x^6 + 10x^5 + 27x^4 - 12x^3 - 115x^2 - 60x + 50 \\
& x^6 - 3x^5 - x^4 + 4x^3 + 17x^2 - 9x - 45 \\
& x^6 - 5x^5 + x^4 + 18x^3 - 13x^2 - 9x + 3 \\
& x^6 - 2x^5 + 5x^4 - 7x^3 + 16x^2 - 5x + 12 \\
& x^6 - 8x^5 + 25x^4 - 59x^3 + 76x^2 - 71x + 12 \\
& x^6 + x^5 - 5x^4 + x^3 + 21x^2 + 3x - 36 \\
& x^6 - 4x^5 - 12x^4 + 24x^3 + 36x^2 - 20x - 5 \\
& x^6 + 10x^5 + 40x^4 + 90x^3 + 120x^2 + 90x + 27 \\
& x^6 - 8x^5 + 8x^4 + 45x^3 - 38x^2 - 92x - 16 \\
& x^6 + x^5 - 23x^4 - 33x^3 - 143x^2 - 23x + 10 \\
& x^6 - 5x^5 - 4x^4 + 31x^3 + 19x^2 - 42x - 30 \\
& x^6 - 6x^5 + 7x^4 - 6x^3 - 7x^2 + 20x + 12 \\
& x^6 + 7x^5 - 7x^4 - 103x^3 - 95x^2 - 9x + 6 \\
& x^6 + 7x^5 + 5x^4 - 40x^3 - 39x^2 + 57x + 45 \\
& x^6 - 3x^5 - 7x^4 + 40x^3 - 94x^2 + 84x - 24 \\
& x^6 - 7x^5 + 11x^4 - x^3 - 11x^2 + 31x - 6 \\
& x^6 + 9x^5 + 8x^4 - 67x^3 - 13x^2 + 120x - 60 \\
& x^6 + 5x^5 + 3x^4 - 20x^3 - 43x^2 + 15x + 75 \\
& x^6 + 5x^5 - 8x^4 - 46x^3 - 83x^2 - 43x + 30 \\
& x^6 + 2x^5 - 2x^4 + 34x^3 - 39x^2 + 104x - 60 \\
& x^6 - 2x^5 - 5x^4 + 7x^2 + 10x + 4 \\
& x^6 - 7x^5 + 18x^4 - 31x^3 + 14x^2 + 45x - 75
\end{aligned}$$

3.3 일계수 육차식 3형

$$\begin{aligned}
& x^6 + 7x^5 + 14x^4 + 12x^3 + 7x^2 - 2x - 3 \\
& x^6 + 3x^5 + 2x^4 + 23x^3 + 22x^2 + 8x + 1
\end{aligned}$$

$$\begin{aligned}
& x^6 + 4x^5 - 4x^4 + 32x^3 - 7x^2 - 22x + 8 \\
& x^6 + 3x^5 - 20x^4 - 17x^3 + 12x^2 - 5x + 15
\end{aligned}$$

$$\begin{aligned}
& x^6 + 7x^5 + 17x^4 + 13x^3 - 7x^2 - 9x - 2 \\
& \quad x^6 + 4x^4 - 2x^3 - 2x^2 + 6x - 5 \\
& \quad x^6 - x^5 - 5x^4 - 10x^3 - 5x^2 - x - 15 \\
& \quad x^6 + 9x^5 + 19x^4 + 2x^3 + x^2 - 22x + 8 \\
& x^6 + 8x^5 + 14x^4 - 5x^3 + 16x^2 + 18x + 4 \\
& \quad x^6 + x^5 + 6x^4 - 2x^3 + 5x^2 - 23x - 20 \\
& \quad x^6 - 6x^5 + 6x^4 + 7x^3 - 23x^2 + 13x - 2 \\
& \quad x^6 + 4x^5 + 2x^4 + x^3 + 6x^2 + 10x + 4 \\
& \quad x^6 - x^4 + 9x^3 - 3x^2 - 6x - 9 \\
& \quad x^6 + 8x^5 + 8x^4 - 30x^3 + 2x^2 + 6x + 3 \\
& \quad x^6 + x^4 - x^3 - 2x^2 - 3x + 12 \\
& \quad x^6 - 4x^5 - 10x^3 - 12x^2 - 26x - 15 \\
& x^6 - 8x^5 + 16x^4 - 10x^3 + 3x^2 - 18x - 8 \\
& \quad x^6 - 2x^5 - 6x^4 - 2x^3 + 5x^2 + 9x + 4 \\
& \quad x^6 - 9x^5 + 22x^4 - 9x^3 + x^2 + 18x - 8 \\
& \quad x^6 - 3x^5 + 8x^4 - 4x^3 + 2x^2 + 19x + 10 \\
& x^6 - 8x^5 + 17x^4 - 11x^3 + 21x^2 + 10x - 8 \\
& \quad x^6 + 2x^5 + 7x^4 + 3x^3 + 10x^2 - 7x + 20 \\
& \quad x^6 + 6x^5 + 10x^4 + 6x^3 + x^2 - 12x + 4 \\
& \quad x^6 + 2x^5 - 4x^4 - 15x^3 - 9x^2 + 9x + 9 \\
& \quad x^6 + 6x^5 + 3x^4 - 16x^3 + 11x - 15 \\
& \quad x^6 + 3x^4 + 4x^3 + 13x^2 - 9 \\
& \quad x^6 + 3x^4 + 10x^3 - 3x - 1 \\
& \quad x^6 - 7x^4 - 22x^3 + 6x^2 + 2x - 4 \\
& x^6 + 4x^5 + 13x^4 + 18x^3 + 18x^2 - 4x - 8 \\
& \quad x^6 + 4x^5 + 4x^4 + x^3 - 8x^2 - 10x - 4 \\
& \quad x^6 - x^5 - 2x^4 + 9x^2 + 6x + 2 \\
& \quad x^6 - 4x^5 - 8x^4 - 7x^3 + x^2 + 5x + 3 \\
& x^6 - 8x^5 + 10x^4 + 29x^3 - 9x^2 - 23x - 6 \\
& \quad x^6 + 6x^5 - 28x^3 + 12x^2 - 10x + 25 \\
& \quad x^6 + 2x^5 - 14x^4 - 6x^3 + 6x^2 - 12x + 9 \\
& \quad x^6 - 5x^5 + 14x^4 - 21x^3 + 14x^2 + 25 \\
& x^6 + 3x^5 - 2x^4 - 6x^3 - 21x^2 - 28x - 10 \\
& \quad x^6 - 5x^5 - 10x^4 + 30x^3 - 5x^2 + 25 \\
& \quad x^6 + 6x^5 + 6x^4 + 10x^3 - 22x^2 + x + 2 \\
& \quad x^6 - 5x^5 + 2x^4 + x^3 - 18x^2 + 15x - 10 \\
& \quad x^6 - x^5 + x^4 - 9x^3 - 6x^2 - 12x - 9 \\
& \quad x^6 - 7x^5 + 10x^4 - 9x^3 - 4x^2 - 25x - 15 \\
& \quad x^6 - x^5 + 3x^4 - 7x^3 + 11x^2 - 4x - 2 \\
& x^6 + 8x^5 + 14x^4 - 2x^3 - 16x^2 + 34x - 15 \\
& \quad x^6 - 3x^5 - 20x^3 + 45x^2 - 25 \\
& \quad x^6 - x^5 - 18x^4 + x^3 + 5x^2 - 14x - 4 \\
& x^6 - 8x^5 + 12x^4 + 9x^3 + 12x^2 - 10x - 4 \\
& \quad x^6 - 4x^5 + x^4 - 13x^3 + 16x^2 + 13x + 2 \\
& \quad x^6 + x^5 + 2x^4 + 5x^3 - 10x^2 + 4x - 8 \\
& \quad x^6 + x^5 - 3x^4 - 2x^3 + 7x^2 - 10 \\
& \quad x^6 + 6x^5 + 11x^4 + 11x^3 - x^2 - x + 3
\end{aligned}$$

$$\begin{aligned}
& x^6 - 7x^5 + 5x^4 + 21x^3 + 7x^2 + 22x + 5 \\
& \quad x^6 + 9x^5 + 18x^4 - 9x^3 + 27x - 10 \\
& \quad x^6 - 5x^5 + 5x^4 - 7x^3 - 8x^2 + 4x + 3 \\
& \quad x^6 - 11x^4 - 14x^3 + 8x^2 - 9x - 15 \\
& x^6 - 5x^5 + 5x^4 + 11x^3 - 18x^2 - 28x - 16 \\
& \quad x^6 - 2x^5 - 25x^4 + 7x^3 + 11x^2 + 25 \\
& \quad x^6 + 6x^5 + 13x^4 + 13x^3 - 6x^2 - 13x + 4 \\
& x^6 - 3x^5 - 7x^4 + 12x^3 + 17x^2 - 15x - 15 \\
& \quad x^6 - x^5 - 19x^4 - 16x^3 - 13x^2 - 16x - 6 \\
& \quad x^6 - 7x^5 + 12x^4 + 2x^3 - 5x^2 + 3x + 2 \\
& \quad x^6 - 2x^5 - 5x^4 - 9x^3 - 6x^2 + 19x + 12 \\
& \quad x^6 + 5x^5 + 12x^4 + 11x^3 + x^2 - 6x + 8 \\
& x^6 - 3x^5 - 3x^4 - 21x^3 + 15x^2 - 25x + 10 \\
& \quad x^6 + x^5 - 21x^4 - 32x^3 - 10x^2 + 10x + 6 \\
& \quad x^6 + 9x^5 + 18x^4 - 3x^3 + 16x^2 - 17x + 3 \\
& x^6 - 2x^5 - 21x^4 + 11x^3 + 20x^2 - 27x + 12 \\
& \quad x^6 + 3x^5 - 3x^4 + 11x^3 + 5x^2 - 6x + 1 \\
& \quad x^6 + 3x^5 + 18x^3 - 18x^2 - x + 1 \\
& \quad x^6 - 3x^4 - 3x^3 - 13x^2 + 7x + 5 \\
& \quad x^6 + 2x^5 - 11x^4 + 4x^3 - x^2 - 25x - 10 \\
& \quad x^6 + 4x^5 + 5x^4 + 21x^3 + 22x^2 - 3x - 2 \\
& \quad x^6 - 7x^5 + 13x^4 - 6x^3 + 7x^2 - 5x + 1 \\
& \quad x^6 - 4x^5 + 11x^4 - 15x^3 + 15x^2 - 5x + 3 \\
& \quad x^6 + x^5 - 22x^4 + 24x^3 - 21x^2 - 7x + 12 \\
& \quad x^6 - x^5 - 10x^4 + 14x^3 - x^2 - 18x + 20 \\
& \quad x^6 - 3x^5 - 4x^4 - 7x^3 - 10x^2 - 4x - 5 \\
& \quad x^6 - 5x^5 + 9x^3 + 8x^2 + 11x - 3 \\
& \quad x^6 - 6x^5 + 21x^3 + 4x + 16 \\
& \quad x^6 + x^5 - x^4 - 4x^3 - 23x^2 - 16 \\
& \quad x^6 - 11x^4 + 2x^3 + 9x^2 + 4x - 2 \\
& \quad x^6 + 2x^5 - 10x^4 - 12x^2 + 24x - 8 \\
& \quad x^6 + 2x^5 - 13x^4 - 9x^3 - 18x^2 - 21x - 6 \\
& x^6 + 5x^5 + 14x^4 + 20x^3 + 22x^2 + 13x + 15 \\
& \quad x^6 + 2x^5 - 10x^4 - 5x^3 + 5x^2 + 7x + 2 \\
& \quad x^6 + x^5 - 27x^4 - 12x^3 + 39x^2 + 10x - 8 \\
& \quad x^6 - 3x^5 - 3x^4 - 20x^3 - 19x^2 + 17x - 15 \\
& \quad x^6 - 4x^5 - x^4 - 16x^3 + 8x^2 - 16 \\
& \quad x^6 - 11x^4 - 12x^3 - 2x^2 + 3x + 1 \\
& \quad x^6 + 7x^5 + 10x^4 - 9x^3 - 6x^2 - x + 1 \\
& \quad x^6 + 6x^5 + 6x^4 - 19x^3 - 39x^2 - 15x + 5 \\
& \quad x^6 - 2x^5 - 7x^4 + x^3 + 9x^2 + 10x - 5 \\
& x^6 - 3x^5 - 13x^4 - 16x^3 + 16x^2 - 13x - 20 \\
& \quad x^6 - 23x^4 + 14x^3 - 19x^2 + 3x + 2 \\
& \quad x^6 - 9x^5 + 19x^4 + 7x^3 - x^2 - 22x - 10 \\
& \quad x^6 + 4x^5 + 5x^4 + 6x^3 + 10x^2 + 11x + 3 \\
& \quad x^6 + 6x^5 + 5x^4 - 19x^3 - 20x^2 + 11x + 4 \\
& \quad x^6 - 8x^5 + 13x^4 + 16x^3 - 18x^2 - 4x + 6
\end{aligned}$$

$$\begin{aligned}
& x^6 - 7x^5 + 17x^4 - 29x^3 + 7x^2 + 15x - 6 \\
& x^6 - 6x^5 + 15x^4 - 26x^3 + 13x^2 - 8x - 5 \\
& x^6 - 3x^5 - 11x^4 - 15x^3 - 2x^2 + 6x + 4 \\
& x^6 - 9x^4 + 18x^3 - 11x^2 - 6x + 6 \\
& x^6 - 4x^5 - 6x^4 - 21x^3 - 12x^2 - 4x + 6 \\
& x^6 + 8x^5 + 14x^4 - 7x^3 - 6x^2 - 20x - 4 \\
& x^6 + 2x^5 + x^4 + 5x^3 - 7x^2 - 12x + 20 \\
& x^6 + 4x^5 + 3x^4 - 10x^3 - 23x^2 + 2x - 10 \\
& x^6 + 2x^5 - 9x^4 + 9x^3 - 20x^2 - 25x - 6 \\
& x^6 - 5x^5 - 22x^3 - 8x^2 + 18x + 8 \\
& x^6 - 5x^5 + 5x^4 - 17x^3 + 7x^2 + 12x + 12
\end{aligned}$$

$$\begin{aligned}
& x^6 + x^5 - 15x^4 - 25x^3 - 5x^2 + 6x + 2 \\
& x^6 + 9x^5 + 16x^4 - 16x^3 + 14x^2 + 4x - 4 \\
& x^6 - 5x^5 - x^4 - 13x^3 - 5x^2 - 6x + 2 \\
& x^6 - 9x^5 + 25x^4 - 26x^3 + 20x^2 - 4 \\
& x^6 - 2x^5 - 6x^4 - 10x^3 + 25x^2 + 3x - 20 \\
& x^6 - 2x^5 - 7x^4 - 27x^3 + 3x^2 + 35x + 15 \\
& x^6 - 6x^5 + 5x^4 + 13x^3 - 15x^2 + 14x + 8 \\
& x^6 + 2x^5 - 5x^4 - 10x^3 - x^2 + 10x - 2 \\
& x^6 - x^5 + 5x^4 + 2x^3 + 7x^2 - 2x - 8 \\
& x^6 - 4x^5 - 4x^4 + 25x^3 - 25x - 25 \\
& x^6 + 8x^5 + 17x^4 + 7x^3 + 7x^2 - 1
\end{aligned}$$

3.4 일계수가 아닌 육차식 1형

$$\begin{aligned}
& 12x^6 - 23x^5 + 11x^4 + 21x^3 - x^2 - 16x - 10 \\
& 15x^6 + 8x^5 - 34x^4 + 10x^3 - 5x^2 + 2x - 1 \\
& 3x^6 - 4x^5 + 3x^4 + 4x^3 - 8x^2 - 6x - 1 \\
& 16x^6 - 4x^5 + 6x^4 + 27x^3 - 26x^2 + 28x - 5 \\
& 2x^6 - 3x^5 - 18x^4 - 32x^3 - 8x^2 + 15x + 20 \\
& 10x^6 - 5x^5 + 23x^3 - 6x^2 + x + 4 \\
& 12x^6 + 15x^5 - 16x^4 - 15x^3 - 16x^2 + 14x - 8 \\
& 12x^6 - 35x^5 + 6x^4 + 30x^3 + 4x^2 + 15x - 25 \\
& 5x^6 + x^5 + 7x^4 - 24x^3 - 11x^2 - 5x + 3 \\
& 5x^6 - 16x^5 - 7x^4 - 26x^3 - 15x^2 - 18x - 3 \\
& 2x^6 - 5x^4 - 3x^3 - 9x^2 - x - 12 \\
& 3x^6 + 8x^5 - 15x^4 + 11x^3 - 36x^2 + 4x - 20 \\
& 15x^6 - 5x^5 - 16x^4 + 26x^3 - 5x^2 - 6x + 15 \\
& 12x^6 + 27x^5 + x^4 - 23x^3 - x^2 + 6x - 10 \\
& 2x^6 + 11x^5 + 21x^4 + 24x^3 + 23x^2 + 11x + 6 \\
& 4x^6 + x^4 - x^3 + 7x^2 - 4x - 12 \\
& 25x^6 + 20x^5 + 15x^4 + 60x^3 + 2x^2 + 19x + 15 \\
& 4x^6 - 20x^5 + 22x^4 - 17x^3 + 5x^2 + x - 2 \\
& 9x^6 - 21x^5 + 16x^4 - 13x^3 + 21x^2 - 10x - 10 \\
& 2x^6 + 10x^5 + 11x^4 - 5x^3 - 23x^2 - 24x - 15 \\
& 4x^6 - 9x^5 + 2x^4 - 14x^3 + 10x^2 + 11x + 20 \\
& 10x^6 - 5x^5 + 14x^4 - 2x^3 - x^2 + 6x - 10 \\
& 5x^6 + x^5 + 30x^4 + 13x^3 + 26x^2 + 20x + 3 \\
& 10x^6 + 5x^5 - 21x^4 - 4x^3 - 9x^2 + 6x + 10 \\
& 20x^6 + 12x^5 - 12x^4 - 7x^3 + 7x^2 + 30x - 25 \\
& 16x^6 + 32x^5 + 3x^4 - 19x^3 - x^2 + 6x - 2 \\
& 3x^6 - 5x^5 + 5x^4 + 3x^3 + 40x^2 - 6x - 8 \\
& 20x^6 + 26x^5 - 27x^4 + 29x^2 - 19x + 6 \\
& 4x^6 + 11x^5 + 16x^4 + 8x^3 + 5x^2 + 2x - 2 \\
& 3x^6 - 11x^5 + 7x^4 - 28x^3 + 11x^2 - 17x + 3 \\
& 15x^6 - 18x^5 + 23x^4 - 14x^3 - 10x^2 + 20x - 25 \\
& 2x^6 - 7x^5 - 2x^4 + 5x^3 + 2x^2 + 13x - 12 \\
& 25x^6 + 20x^5 - 35x^4 + 12x^3 + 8x^2 - 22x + 5
\end{aligned}$$

$$\begin{aligned}
& 12x^6 - 22x^4 - 39x^3 - 7x^2 + 8x + 6 \\
& 4x^6 - 4x^5 + 9x^4 + 4x^3 - 4x^2 + 8x + 4 \\
& 6x^6 - 5x^5 - 45x^4 - x^3 + 6x^2 - 1 \\
& 3x^6 - 8x^5 - 5x^4 + 28x^3 - 4x^2 + 6x + 4 \\
& 12x^6 - x^5 - 17x^4 + 19x^3 + x^2 - 8x + 4 \\
& 2x^6 + 3x^5 - 19x^4 + 29x^3 - 7x^2 + 8x + 16 \\
& 8x^6 - 4x^5 - 6x^4 - 26x^3 + 5x^2 + 23x + 10 \\
& 6x^6 + 6x^5 - x^4 + 26x^3 - 6x^2 - 3x + 12 \\
& 25x^6 + 45x^5 + 20x^4 + 20x^3 - 14x^2 + 25x - 4 \\
& 15x^6 - 9x^5 - 40x^3 + 15x^2 + 25 \\
& 6x^6 + 5x^5 + 11x^4 + 8x^3 + 15x^2 - 3x - 2 \\
& 4x^6 - 6x^5 - 12x^4 + 14x^3 + 13x^2 - 3x - 15 \\
& 25x^6 - 10x^5 - 18x^4 + 20x^3 + 13x^2 - 8x - 10 \\
& 16x^6 - 12x^5 - 2x^4 - 3x^3 - 36x^2 - 5x + 10 \\
& 9x^6 + 3x^5 - 15x^4 - 2x^3 - 11x^2 + 4x - 6 \\
& 25x^6 + 34x^4 + 15x^3 + 53x^2 + 15x - 10 \\
& 10x^6 + 18x^5 - x^4 + 21x^3 + 7x^2 - x + 12 \\
& 10x^6 - 5x^5 + 9x^4 - 30x^3 + 7x^2 + 25x - 12 \\
& 2x^6 + x^5 + 3x^4 + 4x^3 - 12x^2 - 13x - 5 \\
& 8x^6 - 4x^5 - 22x^4 - 11x^3 - 29x^2 - 6x - 20 \\
& 2x^6 - 14x^5 + 16x^4 + 9x^3 + 7x^2 + 6x - 6 \\
& 10x^6 + 10x^5 + 3x^4 - 23x^3 - 14x^2 - 4x + 8 \\
& 6x^6 + 7x^5 + 12x^4 - 9x^3 + 5x^2 + 5x - 2 \\
& 6x^6 + 15x^5 - 5x^4 - 15x^3 + 7x^2 - 10x - 6 \\
& 4x^6 + 18x^5 + 3x^4 - 7x^3 + 17x^2 + 4x - 4 \\
& 9x^6 + 5x^4 - x^3 + 40x^2 + 7x - 12 \\
& 3x^6 + x^5 + 8x^4 + 2x^3 + 5x^2 + 13x + 4 \\
& 4x^6 + 12x^5 + 3x^4 - 35x^3 - 22x^2 + 12x + 16 \\
& 4x^6 + 20x^5 + 11x^4 - 29x^3 + 26x - 8 \\
& 15x^6 - 25x^5 - 24x^4 + 44x^3 - 6x^2 - 21x + 12 \\
& 20x^6 - 40x^5 + 11x^4 + 10x^3 - 21x^2 + 9x - 1 \\
& 16x^6 + 28x^5 + 42x^4 + 27x^3 + 19x^2 - 9x - 6 \\
& 6x^6 - 9x^5 - 7x^4 + 7x^3 - 7x^2 - 20x - 20
\end{aligned}$$

$$\begin{aligned}
&10x^6 + 15x^5 + 33x^4 + 7x^3 + 35x^2 + 13x - 15 \\
&3x^6 - 16x^5 + 16x^4 + 11x^3 - 12x^2 + x + 3 \\
&20x^6 + 19x^5 + 4x^4 + x^3 - 7x^2 - 6x - 9 \\
&4x^6 + 16x^5 + 24x^4 + 14x^3 - x^2 + 7x - 20 \\
&10x^6 - x^5 + 15x^4 - 8x^2 + 12x - 15 \\
&6x^6 + 3x^5 - 11x^4 - 22x^3 + x^2 + 19x + 12 \\
&8x^6 - 8x^5 - 20x^4 + 7x^3 + 17x^2 + 4x - 4 \\
&8x^6 - 20x^5 + 32x^4 - 54x^3 + 47x^2 - 35x + 25 \\
&20x^6 + 21x^5 - 28x^4 - 18x^3 + 14x^2 + 3x - 3 \\
&15x^6 + 8x^5 - 8x^4 + 6x^3 + x^2 - 9x - 6 \\
&4x^6 - 17x^5 + 17x^4 - 6x^3 - 16x^2 + 14x - 5 \\
&12x^6 - 6x^5 - 29x^4 - x^3 + 17x^2 + 7x - 6 \\
&9x^6 + 6x^5 - 5x^4 - 23x^3 - 22x^2 + 3x + 12 \\
&20x^6 - 30x^5 + 20x^4 - 9x^3 - 3x^2 - 2x - 1 \\
&10x^6 + 21x^5 + 9x^4 - 14x^3 + 19x^2 - 5x - 4 \\
&5x^6 - 15x^5 - 5x^4 - 29x^3 - 14x^2 - 18x - 4 \\
&3x^6 + 3x^5 - 25x^4 - x^3 + 22x^2 + 18x + 4 \\
&5x^6 + 18x^5 - 11x^4 + 2x^3 - 12x^2 + x + 3 \\
&10x^6 + 5x^5 - 15x^4 + 31x^3 + 17x^2 - 20x + 12 \\
&2x^6 - x^5 + 4x^4 + 2x^3 + 17x^2 + x - 1 \\
&2x^6 + 5x^4 + 14x^3 + 20x^2 + 26x + 8 \\
&15x^6 - 3x^5 - 30x^4 - 13x^3 + 16x^2 + 8x - 3 \\
&8x^6 - 12x^5 - 2x^4 - x^3 + 6x^2 + 2x + 1 \\
&12x^6 - 4x^5 + 8x^4 + 29x^3 - 23x^2 - x + 12 \\
&2x^6 - 5x^5 + 12x^4 - 22x^3 + 26x^2 - 4 \\
&3x^6 + 11x^5 - 21x^4 + 16x^3 + 21x^2 - 30x + 20 \\
&10x^6 - 4x^5 - x^4 - 11x^3 - 17x^2 + 5x + 20
\end{aligned}$$

$$\begin{aligned}
&8x^6 + 4x^5 + 10x^4 - 35x^3 + 28x^2 - 5 \\
&12x^6 + 6x^5 + 11x^4 - 29x^3 - 15x^2 - 19x + 4 \\
&8x^6 - 12x^5 - 32x^4 - 26x^3 - 41x^2 - 21x + 5 \\
&25x^6 + 25x^5 + 9x^4 - 30x^3 - 26x^2 - 4x + 16 \\
&20x^6 + 17x^5 - 22x^4 - 44x^3 - 16x^2 + 5x + 5 \\
&3x^6 - 9x^5 - 2x^3 + 15x^2 - 5 \\
&15x^6 + 8x^5 - 7x^4 - 54x^3 + 2x^2 + x + 15 \\
&6x^6 - 11x^5 - 6x^4 - 17x^3 - 6x^2 + x + 6 \\
&16x^6 + 12x^5 - 26x^4 + 14x^3 + 19x^2 - 19x + 5 \\
&6x^6 - 15x^5 - 23x^4 + 9x^3 + 10x^2 + 10x - 10 \\
&5x^6 + x^5 + 20x^4 - 5x^3 - x^2 - 16x + 4 \\
&4x^6 + 21x^5 + 34x^4 + 15x^3 - 18x^2 - 24x - 10 \\
&20x^6 - 26x^4 - 19x^3 + 9x^2 + 10x - 3 \\
&3x^6 + 9x^5 + 18x^4 + 8x^3 + 21x^2 + 7x - 2 \\
&9x^6 - 12x^5 + 15x^4 - x^3 - 7x^2 + 12x - 6 \\
&2x^6 + 6x^5 - 5x^4 - 7x^3 + 18x^2 - 13x + 4 \\
&6x^6 + 2x^5 + 5x^4 - 2x^3 + 29x^2 + 16x - 16 \\
&20x^6 - 41x^5 + 33x^4 + 16x^3 - 31x^2 + 9x + 10 \\
&3x^6 + 3x^5 - 7x^4 + 10x^3 - 24x^2 + 31x - 12 \\
&8x^6 - 12x^5 - 16x^4 - 20x^3 - 31x^2 - 8x - 12 \\
&6x^6 - 15x^5 + 9x^4 + x^3 - 10x^2 + 7x + 4 \\
&6x^6 - 6x^5 + 17x^4 - 34x^3 + 20x^2 - 15x + 10 \\
&5x^6 - 23x^5 - 6x^4 + 26x^3 + 12x^2 - 5x - 4 \\
&5x^6 - 16x^5 + 24x^4 + 2x^3 + 5x^2 - 2x - 2 \\
&5x^6 - x^5 + 24x^4 - 24x^3 - x^2 + 9x - 4 \\
&15x^6 + 6x^5 - 15x^4 - 11x^3 - 21x^2 - 4x - 10 \\
&5x^6 + 10x^5 + 21x^3 + 26x^2 - x + 5
\end{aligned}$$

3.5 일계수가 아닌 육차식 2형

$$\begin{aligned}
&16x^6 + 24x^5 - 12x^4 - 62x^3 - 100x^2 - 115x - 75 \\
&40x^6 - 20x^5 + 54x^4 - 7x^3 + 2x^2 + 6x - 12 \\
&8x^6 - 52x^5 + 78x^4 - 57x^3 - 57x^2 + 88x + 20 \\
&8x^6 - 46x^5 + 30x^4 + 67x^3 - 24x^2 - 17x + 6 \\
&2x^6 + 2x^5 - 3x^4 - 3x^3 - 20x^2 + 75x - 125 \\
&45x^6 - 96x^5 - 58x^4 + 200x^3 - 94x^2 + 4x + 5 \\
&75x^6 + 75x^5 - 163x^4 - 124x^3 + 96x^2 + 32x - 16 \\
&4x^6 - 14x^5 + 16x^4 - 27x^3 + 15x^2 + 45x + 9 \\
&9x^6 - 48x^5 + 36x^4 + 34x^3 - 86x^2 + 54x - 9 \\
&40x^6 + 94x^5 + 133x^4 + 115x^3 + 62x^2 + 76x - 16 \\
&15x^6 + 27x^5 - 77x^4 - 6x^3 + 40x^2 - 40x + 48 \\
&36x^6 - 33x^5 - 84x^4 - 25x^3 + 64x^2 + 70x + 20 \\
&6x^6 + 16x^5 + 11x^4 + 9x^3 + 6x^2 - 7x + 1 \\
&5x^6 + 37x^5 + 70x^4 + 114x^3 - 55x^2 - 23x - 20 \\
&24x^6 - 38x^5 + 8x^4 + 5x^3 + x^2 - 17x - 3 \\
&50x^6 + 5x^5 - 171x^4 - 46x^3 + 129x^2 + 23x - 20 \\
&15x^6 - 22x^5 + 38x^4 + 4x^3 + 31x^2 - 110x - 100
\end{aligned}$$

$$\begin{aligned}
&100x^6 + 105x^5 - 173x^4 - 310x^3 - 123x^2 + 145x + 100 \\
&12x^6 - 43x^5 + 24x^4 - 56x^3 - 11x^2 + 8x + 10 \\
&5x^6 + 27x^5 + x^4 - 112x^3 + 28x^2 + 96x - 48 \\
&8x^6 - 14x^5 - 49x^4 + 8x^3 + 61x^2 + 40x + 10 \\
&4x^6 - 8x^5 + 27x^4 - 26x^3 + 33x^2 - 14x + 8 \\
&60x^6 - 56x^5 + 91x^4 - 81x^3 + 121x^2 - 61x + 30 \\
&8x^6 + 44x^5 + 60x^4 - 36x^3 - 112x^2 - 13x + 60 \\
&4x^6 + 6x^5 - 5x^4 + 80x^3 - 99x^2 + 84x - 45 \\
&50x^6 + 100x^5 + 213x^4 + 203x^3 + 204x^2 + 92x + 48 \\
&40x^6 - 76x^5 - 186x^4 + 65x^3 - 135x^2 - 25x + 125 \\
&15x^6 + 17x^5 - 22x^4 - 28x^3 - 20x^2 - 12x + 8 \\
&15x^6 + 13x^5 + 33x^4 + 12x^3 + 3x^2 - x - 15 \\
&20x^6 - 24x^5 - 49x^4 + 175x^3 + 27x^2 - 173x + 60 \\
&8x^6 + 18x^5 - 8x^4 - 17x^3 + 104x^2 + 25x - 100 \\
&10x^6 + 8x^5 - 29x^4 - 20x^2 - 13x + 4 \\
&12x^6 - 23x^5 - 118x^4 - 9x^3 + 101x^2 - 4x - 15 \\
&10x^6 + 40x^5 + 93x^4 + 124x^3 + 114x^2 + 61x + 20
\end{aligned}$$

$$\begin{aligned}
& 30x^6 - 109x^5 + 15x^4 + 65x^3 + 78x^2 + 86x + 24 \\
& 75x^6 + 150x^5 + 142x^4 + 55x^3 - 22x^2 - 28x - 8 \\
& 4x^6 - 4x^5 - 53x^4 - 97x^3 - 34x^2 + 60x + 40 \\
& 24x^6 + 74x^5 + 41x^4 - 60x^3 - 73x^2 - 2x + 24 \\
& 5x^6 - 4x^5 - 113x^4 + 75x^3 + 48x^2 - 41x + 6 \\
& 2x^6 - 5x^5 - 12x^4 - 34x^3 + 23x^2 - 48x + 20 \\
& 20x^6 - 44x^5 - 105x^4 + 49x^3 + 174x^2 + 130x + 40 \\
& 45x^6 + 75x^5 + 72x^4 - 83x^3 - 159x^2 - 170x - 40 \\
& 125x^6 - 150x^4 - 25x^3 - 70x^2 - 10x + 4 \\
& 6x^6 - 16x^5 + 3x^4 + 2x^3 - 70x^2 + 105x - 100 \\
& 4x^6 - 8x^5 + 9x^4 + 35x^3 - 82x^2 + 108x - 48 \\
& 100x^6 + 105x^5 + 55x^4 + 126x^3 - 59x^2 + 45x - 36 \\
& 2x^6 - 5x^5 - 2x^4 + 33x^3 - 42x^2 - 13x + 30 \\
& 125x^6 - 50x^5 - 25x^4 - 49x^3 - 72x^2 - 29x - 12 \\
& 100x^6 + 100x^5 - 285x^4 - 180x^3 + 188x^2 + 33x - 10 \\
& 10x^6 + 47x^5 - 27x^4 - 129x^3 + 47x^2 + 40x - 12 \\
& 48x^6 + 72x^5 + 11x^4 - 24x^3 - 57x^2 + 16 \\
& 16x^6 + 48x^5 - 133x^4 - 68x^3 + 101x^2 + 72x + 12 \\
& 3x^6 + 13x^5 - 19x^3 - 51x + 45 \\
& 48x^6 - 28x^5 + 70x^4 - 77x^3 + 16x^2 - 19x - 60 \\
& 8x^6 - 46x^5 + 83x^4 - 15x^3 - 96x^2 + 45x + 45 \\
& 24x^6 + 34x^5 - 125x^4 + 2x^3 - 34x^2 + 20x + 16 \\
& 4x^6 + 31x^5 + 94x^4 + 137x^3 + 95x^2 + 34x + 5 \\
& 20x^6 + 60x^5 + 109x^4 + 123x^3 + 113x^2 + 60x + 10 \\
& 12x^6 - 28x^5 + 33x^4 - 13x^3 - 69x^2 + 85x - 100 \\
& 2x^6 + 4x^5 - 7x^4 - 8x^3 - x^2 - 2x - 15 \\
& 30x^6 + 20x^5 + 49x^4 + 26x^3 + 25x^2 + 8x + 4 \\
& 30x^6 + 86x^5 + 65x^4 + 3x^3 - 55x^2 + 107x - 60 \\
& 24x^6 + 10x^5 + 22x^4 - x^3 - x^2 - 2x - 8 \\
& 4x^6 - 9x^5 - 24x^4 + 43x^3 + 16x^2 + 10x + 20 \\
& 2x^6 + 13x^5 + 32x^4 + 54x^3 + 52x^2 + 33x + 6 \\
& 12x^6 + 13x^5 + 18x^4 + 31x^3 + 26x^2 + 12x - 24 \\
& 8x^6 - 32x^5 - 14x^4 + 22x^3 - 149x^2 + 40x + 50 \\
& 15x^6 + x^5 - 66x^4 + 95x^3 - 103x^2 - 50 \\
& 75x^6 + 45x^5 - 95x^4 - 31x^3 + 27x^2 + 11x - 4 \\
& 16x^6 + 32x^5 - 129x^4 + 84x^3 - 63x^2 - 56x + 16 \\
& 12x^6 + 77x^5 + 118x^4 + 124x^3 - 15x^2 - 60x - 100 \\
& 16x^6 - 84x^5 - 26x^4 - 153x^3 - 135x^2 - 85x - 100 \\
& 25x^6 - 25x^5 - 20x^4 + 75x^3 - 77x^2 + 38x - 8 \\
& 16x^6 - 12x^5 + 8x^4 - 39x^3 - 52x^2 + 51x - 20 \\
& 6x^6 + 20x^5 + 21x^4 + 12x^3 + 4x^2 + 16x - 4 \\
& 30x^6 - 72x^5 - 13x^4 + 116x^3 - 54x^2 - 7x + 4 \\
& 25x^6 + 25x^5 + 25x^4 - 25x^3 - 46x^2 + 4x + 8
\end{aligned}$$

$$\begin{aligned}
& 75x^6 + 20x^5 - 70x^4 - 36x^3 + 3x^2 + 16x + 4 \\
& 60x^6 + 71x^5 + 88x^4 + 61x^3 + 53x^2 + 18x + 9 \\
& 60x^6 - 29x^5 - 99x^4 - 67x^3 - 38x^2 + 94x + 40 \\
& 60x^6 - 144x^5 + 25x^4 + 85x^3 - 20x^2 + 9x + 5 \\
& 12x^6 - 53x^5 + 138x^4 - 175x^3 + 55x^2 + 100x - 125 \\
& 12x^6 - 14x^5 - 12x^4 - 87x^3 - 99x^2 - 83x - 60 \\
& 40x^6 - 30x^5 - 41x^4 - 174x^3 + 91x^2 + 174x + 40 \\
& 6x^6 + 41x^5 + 35x^4 - 100x^3 - 69x^2 + 79x - 12 \\
& 12x^6 + 30x^5 - 23x^4 - 72x^3 - 55x^2 + 8x + 80 \\
& 5x^6 + 25x^5 + 31x^4 + 21x^3 - 13x^2 - 35x + 10 \\
& 2x^6 + 3x^5 - 4x^4 - 40x^3 - 81x^2 - 112x - 48 \\
& 6x^6 + 11x^5 - 21x^4 + 39x^3 - 45x^2 + 58x - 24 \\
& 8x^6 - 32x^5 + 76x^4 - 97x^3 + 81x^2 - 33x + 9 \\
& 50x^6 - 170x^5 + 49x^4 + 91x^3 - 93x^2 + 120x + 100 \\
& 50x^6 + 45x^5 + 95x^4 - 12x^3 - 133x^2 - 111x - 30 \\
& 100x^6 - 235x^5 + 69x^4 + 129x^3 - 55x^2 - 8x + 12 \\
& 20x^6 + 8x^5 - 56x^4 - 24x^3 + 13x^2 + 10x + 5 \\
& 6x^6 + 19x^5 + 3x^4 - 35x^3 - 59x^2 - 66x - 12 \\
& 18x^6 - 39x^5 + 53x^4 - 29x^3 - 52x^2 + 84x - 80 \\
& 12x^6 - 28x^5 - x^4 + 46x^3 - 44x^2 - 8x + 32 \\
& 10x^6 - 39x^5 - 73x^4 - 39x^3 + 29x^2 + 24x + 4 \\
& 80x^6 + 100x^5 + 22x^4 - 5x^3 - 79x^2 - 18x - 30 \\
& 12x^6 - 39x^5 - 23x^4 - 101x^3 - 41x^2 - 72x - 16 \\
& 12x^6 + 2x^5 + 10x^4 + 21x^3 - 80x^2 + 40x - 75 \\
& 100x^6 + 30x^5 - 143x^4 - 39x^3 - 120x^2 + 25x + 125 \\
& 50x^6 - 55x^5 - 111x^4 - 37x^3 + 25x^2 + 36x + 12 \\
& 50x^6 - 65x^5 + 60x^4 - 47x^3 - 6x^2 - 11x - 2 \\
& 2x^6 + 8x^5 - 5x^4 + 22x^3 + 40x^2 + 8x - 48 \\
& 40x^6 - 10x^5 + 31x^4 - 34x^3 - 18x^2 + 24x - 9 \\
& 8x^6 + 8x^5 + 36x^4 + 16x^3 + 58x^2 + 18x + 45 \\
& 40x^6 + 94x^5 - 139x^4 - 146x^3 - 62x^2 + 21x + 60 \\
& 100x^6 - 205x^5 + 280x^4 - 232x^3 + 169x^2 - 82x + 24 \\
& 36x^6 - 15x^5 - 72x^4 + 26x^3 - 56x^2 - 59x + 12 \\
& 100x^6 + 85x^5 - 165x^4 - 12x^3 + 44x^2 - x - 3 \\
& 10x^6 + 36x^5 - 143x^4 - 176x^3 + 129x^2 + 84x - 45 \\
& 12x^6 + 51x^5 - 74x^4 + 119x^3 - 132x^2 + 68x - 16 \\
& 3x^6 + 24x^5 + 71x^4 + 100x^3 + 76x^2 + 56x + 20 \\
& 60x^6 - 23x^5 + 146x^4 - 69x^3 + 142x^2 - 52x + 48 \\
& 45x^6 + 18x^5 - 26x^4 + 37x^3 - 6x^2 - 22x + 8 \\
& 18x^6 - 57x^5 + 96x^4 - 127x^3 + 140x^2 - 81x + 20 \\
& 12x^6 + 49x^5 - 102x^4 - 128x^3 - 149x^2 - 30x + 40 \\
& 6x^6 + x^5 + 10x^4 - 15x^3 - 16x^2 - x - 30 \\
& 30x^6 - 45x^5 - 7x^4 + 36x^3 - 19x^2 - 7x + 6
\end{aligned}$$

3.6 일계수가 아닌 육차식 3형

$$3x^6 + 16x^5 + 24x^4 + 28x^3 + 20x^2 - 1$$

$$8x^6 + 6x^5 - 36x^4 + 17x^3 + 30x^2 - 33x + 10$$

$$\begin{aligned}
&10x^6 - 29x^5 - 14x^4 + 8x^3 + 35x^2 + 15x - 4 \\
&4x^6 - 11x^5 - 20x^4 - 13x^3 + 21x^2 + 8x - 5 \\
&20x^6 - 3x^5 - 22x^4 - 44x^3 + 12x^2 + 16x - 15 \\
&4x^6 - 16x^5 + 10x^4 + 2x^3 - 15x^2 - x + 1 \\
&16x^6 - 8x^5 - 3x^4 - 7x^3 + 16x^2 - 9x + 10 \\
&3x^6 + 9x^5 + 4x^4 - 2x^3 - x^2 + 5x - 2 \\
&25x^6 + 5x^5 - 32x^4 + 4x^3 - 7x^2 + 23x - 10 \\
&3x^6 + 6x^5 + 2x^4 - 3x^3 + 3x^2 + 12x + 2 \\
&16x^6 + 12x^5 - 4x^4 - 10x^3 - 14x^2 + 15x - 3 \\
&25x^6 - 40x^5 + 50x^4 - 14x^3 + 13x^2 + 6x + 8 \\
&5x^6 + x^5 + 4x^4 - 21x^3 + 29x^2 - 20x + 6 \\
&2x^6 - 3x^5 - 10x^4 + 7x^3 + 6x^2 - 7x - 10 \\
&6x^6 + x^5 - 27x^4 + 5x^3 + 22x^2 + 12x - 15 \\
&20x^6 + x^5 + 29x^4 + 23x^3 - 4x^2 + 22x - 10 \\
&10x^6 - 19x^5 - 7x^4 + 8x^3 + 17x^2 - 3x - 2 \\
&12x^6 + 31x^5 + 17x^4 + 6x^3 + 18x^2 + 11x - 15 \\
&5x^6 - 25x^5 + 20x^4 + 29x^3 - 42x^2 + 5x + 15 \\
&4x^6 - 15x^5 - 24x^4 + 4x^3 + 18x^2 + 9x - 4 \\
&6x^6 - 11x^5 + 24x^4 - 24x^3 + 10x^2 - 4x - 16 \\
&4x^6 - 13x^5 - 4x^4 + 45x^3 - 13x^2 - 32x + 16 \\
&3x^6 + 15x^5 + 20x^4 + 21x^3 + 4x^2 - 25x - 5 \\
&15x^6 - 16x^5 + 3x^4 + 18x^3 - 4x^2 + 8x + 6 \\
&5x^6 + 11x^5 + 13x^4 + 28x^2 + 19x + 20 \\
&9x^6 - 21x^4 - 33x^3 + x^2 + 34x + 15 \\
&15x^6 + 17x^5 + 27x^4 + 18x^3 + 33x^2 + 29x + 5 \\
&5x^6 + 16x^5 + 32x^4 + 42x^3 + 45x^2 + 24x + 16 \\
&3x^6 - 11x^5 + 7x^4 + 21x^3 - 15x^2 - 20x + 25 \\
&5x^6 - 29x^5 + 48x^4 - 10x^3 - 15x^2 + 23x - 6 \\
&3x^6 - 11x^5 + 24x^4 - 26x^3 - 4x^2 - 5x - 25 \\
&2x^6 - x^5 - x^4 - 37x^3 + 12x^2 + 25x + 4 \\
&4x^6 + 5x^5 - 5x^4 - 12x^3 - 27x^2 - 11x - 10 \\
&15x^6 + 10x^5 - 11x^4 - 33x^3 + 2x^2 + 21x + 20 \\
&4x^6 + 12x^5 + 4x^4 + x^3 + 2x^2 - 2x - 1 \\
&15x^6 + x^5 - 18x^4 - 3x^3 - 28x^2 + 11x + 20 \\
&3x^6 - 7x^5 - 13x^4 + 4x^3 + 44x^2 + 45x + 20 \\
&6x^6 + 6x^5 - 11x^4 - 24x^3 - 21x^2 - 4x + 3 \\
&20x^6 - 24x^5 + 18x^4 - 11x^3 - 22x^2 + 4x - 5 \\
&15x^6 + 16x^5 - 4x^4 - 8x^3 + 31x^2 - 18x + 8 \\
&4x^6 + 5x^5 - 22x^4 + 15x^3 + 8x^2 - 8x - 8 \\
&4x^6 + 18x^5 + 24x^4 + 6x^3 + 2x^2 + 25x + 20 \\
&3x^6 - 20x^5 + 11x^4 + 49x^3 + 6x^2 - 25x - 10 \\
&10x^6 + 7x^5 - 18x^4 + 8x^3 - 8x^2 - 24x - 5 \\
&3x^6 + 2x^5 + 10x^4 - 7x^3 - 23x^2 + 5x - 25 \\
&2x^6 + x^5 - 7x^4 - 5x^3 + 8x^2 + 6x - 15 \\
&5x^6 + x^5 - 14x^4 + 19x^3 - 6x^2 - 24x - 5 \\
&15x^6 - 22x^5 - 16x^4 + 6x^3 + 13x^2 + 19x + 12 \\
&6x^6 - 11x^5 + 10x^4 - 18x^3 - 3x^2 - 6x - 8
\end{aligned}$$

$$\begin{aligned}
&4x^6 - 5x^5 + 4x^4 + 5x^3 + 3x^2 - 4x + 10 \\
&12x^6 + 13x^5 + 3x^4 + 22x^3 - 25x^2 - 20x + 10 \\
&10x^6 + 13x^5 - 19x^4 + 20x^3 - 20x^2 + 6x - 4 \\
&12x^6 - 14x^5 + 13x^4 - 25x^3 - 8x^2 - 13x - 20 \\
&12x^6 + 3x^5 + 13x^4 + 12x^3 + 9x^2 - 11x - 12 \\
&2x^6 + x^5 - 6x^4 + x^3 + 22x^2 - 15x + 5 \\
&6x^6 - 3x^5 + 10x^4 - 13x^3 - 11x^2 + 2x + 1 \\
&20x^6 - 14x^5 + 19x^4 - 27x^3 - 7x^2 + 5x - 5 \\
&15x^6 - 30x^5 + 38x^4 - 14x^3 + 7x^2 + 16 \\
&5x^6 + 5x^5 - 21x^4 + 28x^3 - 7x^2 - 6x + 8 \\
&20x^6 - 5x^5 + 8x^4 + 10x^2 + 9x + 6 \\
&2x^6 - 4x^5 - 3x^4 + 6x^3 - 5x^2 - 2x + 3 \\
&3x^6 + 10x^5 + 21x^4 + 25x^3 + 23x^2 + 17x + 3 \\
&10x^6 - x^4 + 11x^3 - 12x^2 + 9x - 2 \\
&4x^6 + 12x^5 + 18x^4 + 7x^3 - 4x^2 + 5x + 12 \\
&10x^6 - 15x^5 + 19x^4 - 27x^3 + 9x^2 + 4x - 4 \\
&8x^6 - 18x^5 - 9x^4 + 24x^3 - 4x^2 - 3x + 6 \\
&20x^6 - 3x^5 + 4x^4 + 28x^3 - 30x^2 + 14x - 15 \\
&15x^6 + 24x^5 + 31x^4 + 24x^3 + 29x^2 + 19x + 10 \\
&5x^6 - 10x^5 + 17x^4 + 11x^3 + x^2 + 6x - 2 \\
&2x^6 + 2x^5 - 5x^4 + 6x^3 - 8x^2 - 9 \\
&12x^6 + 26x^5 + 36x^4 + 26x^3 + 17x^2 + 5x - 5 \\
&10x^6 - 28x^5 + 35x^4 - 12x^3 - x^2 - 22x + 15 \\
&16x^6 + 36x^4 - 16x^3 + 29x^2 - 18x - 5 \\
&20x^6 + 13x^5 - 22x^3 - 21x^2 + 7x + 6 \\
&10x^6 - 3x^5 - 3x^4 - 18x^3 + 42x^2 - 35x + 15 \\
&3x^6 + 12x^5 + 27x^4 + 28x^3 + 24x^2 + 11x - 15 \\
&15x^6 + 32x^5 - 2x^3 - x^2 - 2x - 10 \\
&16x^6 - 24x^5 + 4x^4 - 10x^3 - 12x^2 + 5x - 15 \\
&2x^6 + 4x^5 - 3x^4 - 5x^2 + 20x - 6 \\
&6x^6 + 2x^5 - 5x^4 - 33x^3 - 26x^2 - 40x - 25 \\
&4x^6 + 17x^5 - 8x^4 - 7x^3 - 12x^2 + 28x - 12 \\
&5x^6 - 21x^5 - 43x^4 - 6x^3 + 33x^2 + 40x + 16 \\
&5x^6 - 22x^5 - 11x^4 + 2x^3 - 5x^2 + 26x + 20 \\
&10x^6 - 15x^5 - 41x^4 - 40x^3 + 25x^2 - 16 \\
&5x^6 + 20x^5 + 4x^4 + 5x^2 + 14x - 8 \\
&5x^6 - 12x^5 + x^4 + 27x^3 - 21x^2 + 9 \\
&20x^6 + 2x^5 - 2x^4 - 18x^3 - 15x^2 + 10x + 6 \\
&6x^6 - 7x^5 + 13x^4 - 18x^2 + 22x - 10 \\
&10x^6 + 10x^5 - 17x^4 - 5x^3 + 23x^2 + 8x - 2 \\
&20x^6 - 35x^5 + 26x^4 - 22x^3 + 31x^2 - 32x + 16 \\
&16x^6 + 24x^5 + 8x^4 + 18x^3 - 5x^2 + 2x - 15 \\
&15x^6 + 23x^5 + 8x^4 + 11x^3 + 12x^2 + 3x + 9 \\
&8x^6 - 14x^5 + 3x^4 + 14x^3 + 16x^2 - 30x + 15 \\
&4x^6 - 21x^5 - x^4 + 44x^3 + 3x^2 + 10x + 15 \\
&12x^6 - 10x^5 - 30x^4 + 2x^3 + 9x^2 + 25x + 25 \\
&4x^6 - 15x^5 - 10x^4 + 54x^3 - 48x^2 + 35x - 15
\end{aligned}$$

$$\begin{aligned}
&10x^6 + 18x^5 + 31x^4 - 10x^3 + 20x^2 - 23x - 10 \\
&10x^6 - 12x^5 - 5x^4 + 30x^3 - 32x^2 + 27x - 9 \\
&15x^6 - 27x^5 + 11x^4 - 4x^3 - 2x^2 + 4x - 2 \\
&4x^6 + 5x^5 + 12x^4 + 4x^3 + 2x^2 - 5x - 6 \\
&2x^6 - 4x^5 - 13x^4 + 14x^2 + 25x + 15 \\
&12x^6 - 4x^5 - 8x^4 + 17x^3 + x^2 + 13x - 15 \\
&12x^6 - 7x^5 - 5x^4 + 19x^3 - 21x^2 + 16x - 6 \\
&3x^6 - 4x^5 - 15x^4 + 29x^3 + 25x^2 - 10x - 3 \\
&15x^6 + 13x^5 + 15x^4 + 24x^3 - 14x^2 - 4 \\
&16x^6 + 4x^5 - 2x^4 - 33x^3 - 44x^2 - 31x - 20 \\
&3x^6 + 6x^5 + 16x^4 + 4x^3 + 4x^2 - 24x - 16 \\
&3x^6 + 15x^5 - 8x^4 - 13x^3 + 20x^2 - 20x - 25
\end{aligned}$$

$$\begin{aligned}
&8x^6 - 6x^5 + 13x^4 - 16x^3 + 24x^2 - 6x - 9 \\
&5x^6 + x^5 - 7x^4 + x^3 - 13x^2 + 10x - 6 \\
&25x^6 + 20x^5 + 18x^4 + 31x^3 - 20x^2 + 12x - 16 \\
&5x^6 + 7x^5 + 3x^4 - 15x^3 + 21x^2 - 19x + 4 \\
&16x^6 - 24x^5 - 23x^4 + 32x^3 + 13x^2 - 9x - 3 \\
&8x^6 - 18x^5 - 13x^4 - 26x^3 - 7x^2 - 6x - 8 \\
&15x^6 - 21x^5 + 29x^4 - 31x^3 + 32x^2 - 12x + 4 \\
&9x^6 - 9x^5 - 13x^4 - 16x^3 - 3x - 10 \\
&10x^6 - 11x^5 - 28x^4 - 5x^3 + 8x^2 - 6x - 8 \\
&2x^6 - 14x^5 + 17x^4 + 15x^3 - 21x^2 + 17x + 5 \\
&15x^6 - 23x^5 - 2x^4 - 18x^3 + 18x^2 - 11x - 15 \\
&8x^6 + 12x^5 - 40x^4 + 14x^3 + 26x^2 - 21x + 4
\end{aligned}$$

4. 칠차식의 인수분해

4.1 일계수 칠차식 1형

$$\begin{aligned} & x^7 + 3x^6 - 21x^5 - 47x^4 + 28x^3 - 5x^2 - 16x - 3 \\ & x^7 + 12x^6 + 54x^5 + 133x^4 + 239x^3 + 253x^2 + 120x + 20 \\ & x^7 - 6x^6 + 9x^5 - 20x^4 + 49x^3 - 144x^2 + 76x - 10 \\ & x^7 - 11x^6 + 25x^5 + 53x^4 - 98x^3 - 200x^2 - 104x - 16 \\ & x^7 - 4x^6 + 7x^5 - 19x^4 + 8x^3 + 17x^2 - 10x + 60 \\ & x^7 - 5x^5 + 9x^4 - 20x^3 + 21x^2 - 14x + 12 \\ & x^7 + x^6 - 11x^5 + 18x^4 - 14x^3 - 35x^2 + 4x + 6 \\ & x^7 - 2x^6 - 16x^5 - 31x^4 - 28x^3 - 64x^2 - 140x - 80 \\ & x^7 - 2x^6 - 13x^5 + 16x^4 - 14x^3 - 8x^2 + 32x + 16 \\ & x^7 - 3x^6 - 11x^5 - 22x^4 - 23x^3 + 11x^2 + 99x + 60 \\ & x^7 - x^6 - 3x^5 - 2x^4 - 9x^3 + 12x^2 + 22x - 8 \\ & x^7 + 6x^6 + 13x^5 + 37x^4 + 26x^3 + 45x^2 + 8x - 10 \\ & x^7 + 2x^6 + 2x^5 - 11x^4 - 37x^3 - 40x^2 - 42x + 45 \\ & x^7 + 10x^6 + 21x^5 - 32x^4 - 63x^3 - 3x^2 - 27x + 27 \\ & x^7 - 8x^6 + 16x^5 - 7x^4 + 21x^3 + 41x^2 - 54x - 30 \\ & x^7 - 4x^6 - 9x^5 + 46x^4 - 34x^3 + 2x^2 + 16x - 4 \\ & x^7 + 7x^6 + 4x^5 - 20x^4 + x^3 + 7x^2 - 26x + 10 \\ & x^7 + 3x^6 - 30x^5 - 100x^4 + 26x^3 - 2x^2 - 105x - 45 \\ & x^7 + 8x^6 + 2x^5 - 29x^4 + 131x^3 - 317x^2 + 280x - 80 \\ & x^7 - 10x^6 + 31x^5 - 33x^4 - 10x^3 + 59x^2 - 46x + 10 \\ & x^7 - 3x^6 + 2x^4 + 15x^3 - 44x^2 + 25x - 4 \\ & x^7 + 5x^6 + 8x^5 + 18x^4 + 37x^3 + 13x^2 + 6x - 8 \\ & x^7 + 2x^6 - x^5 - 2x^4 + 2x^3 - 7x^2 - 15x + 6 \\ & x^7 + x^6 - 17x^5 + 21x^4 - 37x^3 - 95x^2 - 22x + 8 \\ & x^7 + 8x^6 + 21x^5 + 13x^4 - 32x^3 - 47x^2 - 4x + 20 \\ & x^7 + 5x^6 + 4x^5 + 19x^4 + 51x^3 + 50x^2 + 6x + 60 \\ & x^7 - 8x^6 + 20x^5 - 19x^4 - 9x^3 + 50x^2 + 80x - 75 \\ & x^7 - 29x^5 - 51x^4 + 78x^3 + 209x^2 + 140x + 30 \\ & x^7 + 8x^6 + 14x^5 - 11x^4 - 54x^3 - 55x^2 + 49x + 60 \\ & x^7 + 2x^6 + 2x^5 + 2x^4 + 12x^3 + 18x^2 - 15x + 50 \\ & x^7 - 9x^6 + 22x^5 - 24x^4 + 20x^3 - 7x^2 - 40x + 10 \\ & x^7 + 8x^6 + 13x^5 - 2x^4 + 16x^3 + 33x^2 - 57x + 18 \\ & x^7 - 18x^5 + 32x^4 + 17x^3 - 64x^2 + 12x + 16 \\ & x^7 + 4x^6 + 4x^5 - x^4 + 4x^3 + 16x^2 - 20x - 48 \end{aligned}$$

$$\begin{aligned} & x^7 - x^6 - 18x^5 + 19x^4 + 26x^3 + 47x^2 - 39x - 60 \\ & x^7 + 3x^6 + x^5 + 21x^4 - 20x^3 + 57x^2 + 18x - 27 \\ & x^7 + 4x^6 - 4x^5 - 12x^4 + 14x^3 - 24x^2 + 7x - 10 \\ & x^7 + 7x^6 + 11x^5 + 19x^4 + 54x^3 - 96x^2 + 120x - 80 \\ & x^7 - 7x^6 + x^5 + 58x^4 - 48x^3 - 67x^2 + 30x + 24 \\ & x^7 - 8x^6 + 19x^5 - 21x^4 + 11x^3 + 70x^2 - 28x + 16 \\ & x^7 - 4x^6 + 4x^4 - 55x^3 + 8x^2 - 74x - 40 \\ & x^7 + 4x^6 - 4x^5 - 16x^4 - 37x^3 - 26x^2 - 6x + 12 \\ & x^7 + 2x^6 - 16x^5 - 44x^4 - 49x^3 - 8x^2 - 86x - 40 \\ & x^7 - 2x^6 + 7x^5 + 6x^4 - 23x^3 + 91x^2 - 95x + 75 \\ & x^7 - 6x^5 - 11x^4 - 26x^3 - 87x^2 - 51x - 20 \\ & x^7 + 6x^6 + 17x^5 + 47x^4 + 89x^3 + 155x^2 + 100x + 125 \\ & x^7 - 8x^6 + 7x^5 + 62x^4 - 179x^3 + 130x^2 + 55x - 100 \\ & x^7 + 3x^6 - 5x^5 - 10x^4 + 10x^3 + 6x^2 - 8x - 4 \\ & x^7 + 6x^6 - 6x^5 - 31x^4 + 99x^3 + 42x^2 - 30x - 9 \\ & x^7 + 3x^6 - 7x^5 - 6x^4 + 4x^3 + 68x^2 - 84x + 24 \\ & x^7 - x^6 - 15x^5 - 3x^4 + 57x^3 + 91x^2 + 58x + 12 \\ & x^7 + 3x^6 + 8x^5 + 14x^4 + 8x^3 + 18x^2 + 3x + 15 \\ & x^7 - 2x^6 - 15x^5 + 66x^4 - 97x^3 - 44x^2 + 34x + 8 \\ & x^7 + 2x^6 - 7x^5 + 46x^4 - 93x^3 + 179x^2 - 215x + 75 \\ & x^7 - 4x^6 - 5x^5 + 15x^4 + 38x^3 - 25x^2 - 4x + 2 \\ & x^7 + 7x^6 + 8x^5 - 12x^4 + 10x^3 - 24x^2 + 3x - 5 \\ & x^7 + 6x^6 - 3x^5 - 19x^4 + 9x^3 - 55x^2 + 80x - 25 \\ & x^7 + 3x^6 + 4x^5 - 3x^4 - 17x^3 - 22x^2 - 20x - 16 \\ & x^7 - 5x^6 + 6x^5 - 21x^4 - 11x^3 - 26x^2 - 60x - 24 \\ & x^7 - x^6 - 11x^5 + 37x^4 - 45x^3 + 33x^2 - 36x + 36 \\ & x^7 + 4x^6 + 4x^5 + 16x^4 - 14x^3 + 70x^2 + 9x - 36 \\ & x^7 - 3x^6 + 2x^5 + 3x^4 - 9x^3 - 38x^2 + 68x - 20 \\ & x^7 + 6x^6 - x^5 - 51x^4 - 134x^3 - 33x^2 + 74x - 12 \\ & x^7 + 2x^6 - 11x^5 - 17x^4 - 24x^3 + 23x^2 + 90x + 36 \\ & x^7 - 4x^6 - 6x^5 + 28x^4 + 8x^3 - 30x^2 - 85x + 100 \\ & x^7 - 7x^6 - 8x^5 + 96x^4 - 16x^3 - 113x^2 - 52x - 6 \\ & x^7 + 4x^6 - 10x^5 - 16x^4 + 10x^3 - 68x^2 - 91x + 20 \\ & x^7 - 5x^6 - 16x^5 + 65x^4 + 31x^3 - 64x^2 - 12x + 16 \end{aligned}$$

$$\begin{aligned}
& x^7 - x^6 - 13x^5 + 11x^4 + 11x^3 - 27x^2 + 40x - 10 \\
& x^7 + 7x^6 - 5x^5 - 88x^4 - 69x^3 + 106x^2 + 60x - 45 \\
& x^7 - 11x^5 + 16x^4 + 20x^3 - 58x^2 - 4x + 16 \\
& x^7 + 2x^6 + 20x^4 + 7x^3 + 5x^2 + 90x + 50 \\
& x^7 + x^6 - 6x^5 + 28x^4 - 17x^3 + 19x^2 + 30x - 8 \\
& x^7 - 2x^6 - 4x^5 + 15x^4 - 23x^3 + 9x^2 + 4x - 2 \\
& x^7 + 13x^6 + 60x^5 + 118x^4 + 110x^3 + 87x^2 - 8x - 30 \\
& x^7 + 4x^6 + 7x^5 + 9x^4 + 5x^3 - 6x^2 - 21x + 9 \\
& x^7 + 7x^6 - 7x^5 - 117x^4 - 163x^3 - 25x^2 + 20x + 4 \\
& x^7 + 4x^6 - 8x^5 - 34x^4 + 22x^3 + 76x^2 - 35x - 30 \\
& x^7 - 10x^6 + 16x^5 + 52x^4 + 4x^3 - 124x^2 - 125x - 30 \\
& x^7 + 8x^6 + 22x^5 + 9x^4 - 67x^3 - 114x^2 - 24x + 45 \\
& x^7 - 3x^6 + 5x^5 - 16x^4 + 19x^3 - 13x^2 + 19x + 12 \\
& x^7 - 5x^6 - 10x^5 + 65x^4 - 58x^3 + 52x^2 - 3x - 6 \\
& x^7 + 6x^6 + 5x^5 + 16x^4 - 14x^3 + 7x^2 - 23x + 12 \\
& x^7 + 9x^6 + 14x^5 - 47x^4 - 64x^3 + 94x^2 - 8x - 8 \\
& x^7 - 12x^5 - 17x^4 - 67x^3 - 61x^2 - 66x - 30 \\
& x^7 + 6x^6 + x^5 - 38x^4 - 45x^3 + 44x^2 + 46x - 24 \\
& x^7 - 2x^6 - 11x^5 + 12x^4 - 37x^3 + 29x^2 - 25x + 15 \\
& x^7 + 4x^6 - 33x^5 - 119x^4 + 65x^3 - 58x^2 + 114x - 40 \\
& x^7 + 3x^6 + x^5 - 2x^4 - 23x^3 - 68x^2 - 62x - 15 \\
& x^7 - 2x^6 - 5x^5 - 21x^4 - 2x^3 - 25x^2 + 66x + 60 \\
& x^7 - 5x^6 - 7x^5 + 33x^4 + 25x^3 - x^2 + 18x - 4 \\
& x^7 + 6x^6 + 18x^5 + 48x^4 + 83x^3 + 106x^2 + 62x + 12 \\
& x^7 + 3x^6 - 10x^5 + 30x^4 - 49x^3 + 26x^2 - 25x + 20 \\
& x^7 + 11x^6 + 45x^5 + 100x^4 + 107x^3 + 11x^2 - 113x + 30
\end{aligned}$$

$$\begin{aligned}
& x^7 - 6x^5 + 13x^4 - 31x^3 + 8x^2 - 12x - 9 \\
& x^7 - x^6 - 15x^5 + 23x^4 + 22x^3 - 81x^2 - 12x + 45 \\
& x^7 + 13x^6 + 46x^5 - 6x^4 - 142x^3 + 172x^2 - 88x + 16 \\
& x^7 + 7x^6 + 11x^5 + 16x^4 + 53x^3 - 93x^2 + 3x + 18 \\
& x^7 + x^6 - 15x^5 - 23x^4 - 53x^3 + 55x^2 - 10x + 100 \\
& x^7 - 5x^6 - 7x^5 + 56x^4 - 57x^3 + 47x^2 - 17x + 2 \\
& x^7 - 2x^6 - 24x^5 + 77x^4 - 108x^3 + 46x^2 - 92x + 48 \\
& x^7 - 4x^6 - 10x^5 + 13x^4 - 66x^3 + 14x^2 - 20x - 48 \\
& x^7 + x^6 - 17x^5 - 74x^4 - 102x^3 - 11x^2 + 114x + 40 \\
& x^7 + 5x^6 - 4x^5 - 38x^4 - 33x^3 + 3x^2 + 44x - 10 \\
& x^7 + 4x^6 - 21x^5 - 85x^4 + 4x^3 + 37x^2 - 4 \\
& x^7 + 4x^6 - 3x^5 - 12x^4 + 7x^3 - 36x^2 - 85x - 20 \\
& x^7 - 4x^6 - 2x^5 + 24x^4 - 31x^3 - 9x^2 + 42x - 36 \\
& x^7 - 7x^6 + 22x^5 - 42x^4 + 20x^3 + 15x^2 - 78x - 36 \\
& x^7 - 5x^6 - x^5 - 14x^4 + 11x^3 + 22x^2 + 34x + 15 \\
& x^7 - 5x^6 - 16x^5 + 116x^4 - 162x^3 + 68x^2 - 25x + 15 \\
& x^7 + 2x^6 - 15x^5 - 34x^4 - 149x^3 - 131x^2 - 145x - 75 \\
& x^7 + x^6 - 22x^5 - 65x^4 - 178x^3 - 189x^2 - 19x + 30 \\
& x^7 + x^6 - 20x^5 - 7x^4 + 48x^3 + 10x^2 + 9x + 6 \\
& x^7 - 5x^6 + x^5 + 16x^4 + 11x^3 - 46x^2 + 2x + 5 \\
& x^7 - 2x^6 - 15x^5 + 26x^4 + 43x^3 - 28x^2 - 38x - 8 \\
& x^7 + x^6 - 17x^5 + 81x^3 - 60x^2 - 54x + 45 \\
& x^7 - 5x^6 + 4x^5 - 34x^4 - 47x^3 - 74x^2 - 185x - 100 \\
& x^7 - 5x^6 - 18x^5 + 100x^4 - 88x^3 + 68x^2 - 16 \\
& x^7 + x^6 - 2x^5 + 10x^4 - 6x^3 - 13x^2 + 10x - 100 \\
& x^7 - 6x^6 + x^5 - 9x^3 + 14x^2 + 50x + 30
\end{aligned}$$

4.2 일계수 칠차식 2형

$$\begin{aligned}
& x^7 - 5x^6 + 3x^5 + 9x^4 - 5x^2 - 10x + 25 \\
& x^7 + 2x^6 - 10x^5 - 4x^4 + 6x^3 - 18x^2 + 3x - 4 \\
& x^7 + 9x^6 + 21x^5 + 11x^4 + 19x^3 + 7x^2 - 13x - 4 \\
& x^7 - x^6 - 7x^5 - 12x^4 + 25x^3 - 21x^2 + 9x - 2 \\
& x^7 + 5x^6 + 5x^5 - 3x^4 - 9x^3 - 23x^2 + 4x + 2 \\
& x^7 - 2x^6 + 2x^5 + 2x^4 - 12x^3 - 20x^2 + 15x + 20 \\
& x^7 + 6x^6 + 7x^5 - 6x^4 - 4x^3 - 5x^2 - 7x + 20 \\
& x^7 + 5x^6 - x^5 + 24x^4 - 12x^3 + 7x^2 + 15x + 3 \\
& x^7 - 9x^6 + 13x^5 + 31x^4 + 13x^3 + 19x^2 + 9x + 3 \\
& x^7 - 3x^6 - 5x^5 + 4x^4 + 5x^3 + 18x^2 - 4x - 10 \\
& x^7 - 18x^5 + 29x^4 - 33x^3 + 31x^2 - 14x + 2 \\
& x^7 - 5x^6 + 8x^5 - 25x^4 + 14x^3 - 22x^2 + 11x - 4 \\
& x^7 + 2x^6 - 9x^5 - 12x^3 - x^2 + 19x - 20 \\
& x^7 - 7x^6 + 15x^5 - 13x^4 - 3x^3 + 7x^2 - 6x + 12 \\
& x^7 - 31x^5 - 13x^4 + 17x^3 + 25x - 15 \\
& x^7 - 3x^6 - 2x^5 - 11x^4 + 17x^3 + 5x^2 + 10x - 15 \\
& x^7 + 7x^6 + 8x^5 + 10x^4 + 13x^3 - 19x^2 + 9x + 15 \\
& x^7 - 9x^6 + 19x^5 + 7x^4 - 13x^3 + 7x^2 - 8x + 2
\end{aligned}$$

$$\begin{aligned}
& x^7 - 7x^6 + 15x^5 - 19x^4 + 27x^3 - 16x^2 + 7x + 4 \\
& x^7 - 6x^6 + 8x^5 + 4x^4 + 3x^3 - 16x^2 - 13x + 10 \\
& x^7 + 6x^6 + 5x^5 - 4x^4 + 12x^3 + 4x^2 + 8x - 16 \\
& x^7 - 2x^6 - 15x^5 - 3x^4 + 35x^3 + 29x^2 - 5x - 12 \\
& x^7 - x^6 - 6x^5 + 4x^4 + 14x^3 - x^2 - 17x - 12 \\
& x^7 - 3x^6 + 4x^5 - 11x^4 + 10x^3 - 5x^2 + 17x - 12 \\
& x^7 - 3x^6 - 2x^5 + 2x^4 + x^3 - 11x^2 - 25x - 5 \\
& x^7 + x^6 - 9x^5 - 33x^4 - 14x^3 - 11x^2 + 30x - 5 \\
& x^7 + 8x^6 + 17x^5 + 7x^4 + x^3 - 16x^2 + 12x - 10 \\
& x^7 + x^6 - x^5 + 11x^4 - 13x^3 + 20x^2 - 26x + 10 \\
& x^7 - x^6 + 3x^5 + 2x^3 - 4x^2 - 5x - 5 \\
& x^7 + 2x^6 - 12x^5 - 17x^4 - 26x^3 - 28x^2 - 12x - 12 \\
& x^7 + 2x^6 - 2x^5 - 2x^4 - 8x^3 + 31x^2 - 25x + 5 \\
& x^7 + x^6 - 5x^5 - 10x^4 + 6x^3 - 3x^2 - 10x + 12 \\
& x^7 + 4x^6 - 9x^5 - 20x^4 + 8x^3 + 14x^2 - x - 2 \\
& x^7 - 24x^5 + 18x^4 - 40x^3 - 3x^2 - 7x - 15 \\
& x^7 - 3x^6 + 12x^5 - 24x^4 + 42x^3 - 53x^2 + 40x - 20 \\
& x^7 - 2x^6 + 4x^5 + x^4 - 4x^3 + 5x^2 + 13x + 6
\end{aligned}$$

$$\begin{aligned}
& x^7 - 8x^6 + 24x^5 - 34x^4 + 25x^3 - 18x^2 + 6x - 4 \\
& \quad x^7 - 4x^6 - 2x^5 - 4x^4 - 18x^2 - 13x - 20 \\
& \quad x^7 + x^6 - x^5 + 9x^4 + 6x^3 - 28x^2 + 5x + 5 \\
& x^7 - x^6 - 16x^5 + 14x^4 - 18x^3 + 8x^2 - 8x - 8 \\
& x^7 + 6x^6 + 4x^5 - 3x^4 - 10x^3 + 7x^2 - 3x - 12 \\
& \quad x^7 - x^5 - 3x^4 - 16x^3 + 24x^2 - 24x + 4 \\
& x^7 - 8x^6 + 15x^5 - 6x^4 + 2x^3 + 10x^2 + 5x + 2 \\
& x^7 - x^6 - 11x^5 + 8x^4 + 6x^3 - 32x^2 + 4x + 16 \\
& \quad x^7 - x^6 - 4x^4 - 9x^3 + 9x^2 - 8x + 4 \\
& x^7 + 6x^6 + 5x^5 + 2x^4 + 4x^3 - 9x^2 + 10x - 5 \\
& \quad x^7 - 5x^6 + x^5 - x^4 - 7x^3 + 2x^2 - 6x + 6 \\
& x^7 - 3x^6 - 6x^5 + 6x^4 + 21x^3 + 13x^2 + 6x - 2 \\
& x^7 - 6x^6 + 6x^5 + x^4 - 13x^3 - 28x^2 - 18x - 6 \\
& \quad x^7 - 3x^6 - 2x^5 + 4x^4 - 6x^3 - x^2 + 4x - 4 \\
& \quad x^7 + 5x^6 + 4x^5 - 2x^4 + 5x^3 + 4x^2 - 3x + 4 \\
& x^7 + 2x^6 - 17x^5 + 22x^4 - 52x^3 + 10x^2 - 9x - 20 \\
& \quad x^7 - 18x^5 - 28x^4 - 28x^3 + 8x^2 + 28x - 5 \\
& x^7 + 4x^6 - 3x^5 - 15x^4 - 23x^3 - 24x^2 + 3x + 9 \\
& \quad x^7 - 5x^5 + 19x^4 - 5x^3 - 33x^2 + 14x + 15 \\
& \quad x^7 - 2x^6 - 11x^4 + 23x^3 - 6x^2 - 15x + 15 \\
& \quad x^7 - 4x^6 - 5x^5 + 5x^4 - 7x^2 - 6x + 8 \\
& x^7 - 3x^6 - 13x^5 - 26x^4 + 4x^3 - 16x^2 - 16x - 15 \\
& \quad x^7 + x^6 - 26x^5 + 13x^4 + 26x^3 + 14x^2 - 3x - 10 \\
& x^7 + 9x^6 + 14x^5 - 29x^4 - 8x^3 - 14x^2 + 16x + 12 \\
& \quad x^7 - 5x^6 - 6x^5 + 15x^4 + 6x^3 - 7x + 2 \\
& x^7 - 4x^6 + 6x^5 + 11x^4 - 34x^3 + 27x^2 + 5x - 20 \\
& \quad x^7 - x^6 - 7x^5 + 7x^4 - 4x^3 + 18x^2 + 2x + 8 \\
& x^7 - x^6 - 19x^5 - 29x^4 + 20x^3 + 27x^2 + 20x - 25 \\
& \quad x^7 - 3x^6 - 4x^5 + 14x^4 - 25x^3 + 7x^2 - 5x - 25 \\
& \quad x^7 - x^6 - x^5 + 2x^4 - 19x^3 - 3x^2 + 25x + 12 \\
& x^7 + x^6 - 19x^5 + 17x^4 + 36x^3 + 16x^2 - 15x - 10 \\
& \quad x^7 - 2x^6 + 2x^5 + 3x^4 - 13x^2 - 9x + 9 \\
& x^7 + 4x^6 + 7x^5 + 9x^4 + 13x^3 + 12x^2 + 6x + 8 \\
& \quad x^7 - x^6 - 20x^5 + 30x^4 - 7x^3 + 7x^2 - 4x + 6 \\
& x^7 - 9x^6 + 27x^5 - 29x^4 + x^3 + 21x^2 - 15x + 4 \\
& \quad x^7 + x^6 + x^5 - 6x^4 + 9x^3 + 22x^2 - 12x - 4 \\
& x^7 + 9x^6 + 17x^5 - 18x^4 - 15x^3 + 7x^2 + 9x - 6 \\
& x^7 + 9x^6 + 21x^5 - 2x^4 - 33x^3 - 8x^2 + 12x + 3 \\
& x^7 + x^6 - 12x^5 + 10x^4 + 9x^3 + 16x^2 + 25x + 20 \\
& \quad x^7 - 2x^6 - 9x^5 + 6x^4 + 30x^3 - 5x^2 + 5x - 20 \\
& \quad x^7 - x^6 - 16x^5 - 32x^4 + 2x^3 - 8x^2 + x - 1 \\
& x^7 + 4x^6 - 9x^5 - 15x^4 + 15x^3 + 10x^2 - 21x + 9
\end{aligned}$$

4.3 일계수 칠차식 3형

$$\begin{aligned}
& x^7 - 6x^6 + 6x^5 + 15x^4 - 16x^3 - 7x^2 - 13x + 12 \\
& x^7 + 9x^6 + 16x^5 - 21x^4 - 5x^3 + 14x^2 + 8x - 2
\end{aligned}$$

$$\begin{aligned}
& x^7 + 4x^6 + 4x^5 + 26x^4 + 16x^3 + 4x^2 + 4x + 1 \\
& x^7 - 2x^6 - 18x^5 + 27x^4 + 23x^3 - 40x^2 + 5x + 5 \\
& \quad x^7 + 4x^6 + 8x^5 + 13x^4 + 3x^3 - 6x^2 - 3x - 9 \\
& x^7 + 4x^6 - 11x^5 - 13x^4 + 14x^3 - 7x^2 + 4x + 4 \\
& \quad x^7 - 5x^6 + 12x^5 - 19x^4 + 9x^3 + x^2 - 18x - 5 \\
& \quad x^7 + 4x^6 - x^5 + 4x^4 - 35x^3 - x^2 + 27x + 9 \\
& x^7 + 8x^6 + 12x^5 - 11x^4 + 29x^3 + 10x^2 - 6x + 20 \\
& \quad x^7 - 3x^6 + 6x^4 + 6x^3 - 7x^2 - 11x - 2 \\
& \quad x^7 + 4x^6 - 2x^5 + 6x^3 - 12x^2 + 4 \\
& \quad x^7 - 16x^5 - 14x^4 - 32x^3 - 32x^2 - 23x - 12 \\
& \quad x^7 - 5x^6 + x^5 - 2x^4 + 24x^3 - 24x^2 - 4x + 8 \\
& x^7 + x^6 - 2x^5 - 13x^4 - 27x^3 - 26x^2 - 18x - 6 \\
& \quad x^7 + 3x^6 - 8x^4 - 8x^3 + 15x^2 + 10 \\
& x^7 - 3x^6 - 4x^5 - 11x^4 + 21x^3 + 5x^2 + 6x + 15 \\
& \quad x^7 + x^6 - 4x^5 - 8x^4 + 2x^3 + 5x^2 - 12x - 20 \\
& \quad x^7 + 3x^6 - 4x^4 - 3x^3 - 3x^2 + 2x - 4 \\
& x^7 + 3x^6 - 10x^5 - 11x^4 + 22x^3 - 8x^2 - 8x + 6 \\
& \quad x^7 - x^6 - 21x^5 + x^4 + 7x^3 + 19x^2 + 8x - 16 \\
& x^7 - 2x^6 - 13x^5 + 7x^4 - 17x^3 + 24x^2 - 10x + 4 \\
& \quad x^7 + 5x^6 - x^5 + 21x^4 + 2x^3 - 22x^2 - 22x - 6 \\
& \quad x^7 - x^6 + x^5 - 3x^4 - 16x^3 + 11x^2 + 20x + 5 \\
& \quad x^7 + 4x^6 - 2x^4 - 15x^3 - 8x^2 + 11x + 6 \\
& x^7 - 3x^6 - 2x^5 + 7x^4 - 7x^3 + 19x^2 + 12x - 3 \\
& \quad x^7 - 6x^6 + 9x^5 - 10x^4 + 9x^3 + x^2 + x + 5 \\
& \quad x^7 - 5x^6 - 2x^5 + 3x^4 + 9x^3 - 13x^2 - 2x - 3 \\
& \quad x^7 - x^6 - 4x^5 - 3x^3 - x^2 + 3x - 5 \\
& x^7 - 9x^6 + 23x^5 - 8x^4 - 22x^3 + 23x^2 + 3x - 5 \\
& \quad x^7 - x^6 - 5x^5 - 4x^4 + 6x^3 + 22x^2 + 18x + 8 \\
& x^7 + x^6 - 18x^5 + 36x^4 - 16x^3 - x^2 + 21x - 15 \\
& \quad x^7 - 2x^6 + 5x^5 - 6x^4 + 2x^3 - x^2 - 7x - 2 \\
& x^7 - 2x^6 - 12x^5 - 27x^4 + 12x^3 + 33x^2 + 5x - 2 \\
& \quad x^7 + 4x^6 + 2x^5 - x^4 - 7x^3 - 11x^2 - 14x - 8 \\
& \quad x^7 - x^6 + x^5 - 10x^4 + 24x^3 + 15x^2 + 4x - 4 \\
& x^7 + 6x^6 + 4x^5 - 13x^4 + x^3 - 7x^2 + 31x - 12 \\
& x^7 - 3x^6 - 7x^5 - 26x^4 + 7x^3 + 30x^2 + 16x - 4 \\
& x^7 - 3x^6 - 8x^5 - 35x^4 - 4x^3 + 6x^2 + 29x - 10 \\
& \quad x^7 - x^6 - 2x^5 + 10x^4 - 17x^3 + 28x - 20 \\
& x^7 + 2x^6 + x^5 + 18x^4 - 16x^3 + 19x^2 - 7x - 4 \\
& x^7 + 5x^6 + 6x^5 - 3x^4 - 12x^3 - 16x^2 - 7x - 4 \\
& x^7 - x^6 - 5x^5 + 8x^4 + 24x^3 - 13x^2 - 12x + 6 \\
& \quad x^7 - 6x^6 + 9x^5 - x^4 - 7x^3 + 8x^2 - 11x + 10 \\
& \quad x^7 + x^6 + 3x^5 - x^4 - 6x^3 - x^2 - 16x + 15
\end{aligned}$$

$$\begin{aligned}
& x^7 + 3x^6 - 16x^5 - 21x^4 + 13x^3 + 28x^2 + 24x + 8 \\
& x^7 - 7x^6 + 9x^5 + 9x^4 - 8x^3 + x^2 + 24x - 5
\end{aligned}$$

$$\begin{aligned}
& x^7 - 2x^6 - 2x^5 + 4x^4 + 7x^3 - 7x^2 - 12x + 6 \\
& x^7 + 3x^6 - 6x^5 + 23x^4 + 4x^3 - 27x^2 + 15x - 25 \\
& x^7 - 5x^6 + 7x^5 - x^4 + 2x^3 - 11x^2 - 4x + 3 \\
& x^7 + x^6 - 2x^5 - 9x^4 - 12x^3 - 13x^2 - 10x - 6 \\
& x^7 - 5x^6 + 4x^5 + 9x^4 - 11x^3 + 12x + 4 \\
& x^7 + 3x^6 - 4x^5 - 2x^4 - 9x^3 - 4x + 5 \\
& x^7 + 4x^6 + 7x^5 + 9x^4 - 15x^3 - 35x^2 - 30x - 25 \\
& x^7 - 4x^6 + 2x^5 - 21x^4 + 9x^3 + 23x^2 + 2x - 2 \\
& x^7 - x^6 + 2x^5 - 10x^4 - 5x^3 - x^2 - 10x - 4 \\
& x^7 + 5x^6 + 3x^5 + 2x^4 - 12x^3 + x^2 + 12x + 4 \\
& x^7 + 4x^6 - 6x^5 - 31x^4 - 13x^3 + x^2 - 21x + 20 \\
& x^7 + 5x^6 + 9x^5 + 24x^4 + 20x^3 - x^2 + 20 \\
& x^7 - 5x^6 + 4x^5 - 12x^4 - 2x^3 + 28x^2 + 19x + 3 \\
& x^7 + x^6 - 6x^5 + 20x^4 - 41x^3 + 26x^2 + 17x - 20 \\
& x^7 - x^6 - 19x^5 + 18x^4 + 26x^3 - 4x^2 - 8x - 20 \\
& x^7 - 4x^6 - 6x^5 + 20x^4 + 18x^3 - 5x^2 + 6x + 5 \\
& x^7 - 5x^6 + 6x^5 - 27x^4 + 7x^3 - 9x^2 + 10x + 5 \\
& x^7 + 5x^6 + 2x^5 - 13x^4 - 13x^3 - 9x^2 + 2x + 1 \\
& x^7 + 6x^6 + 6x^5 + x^4 + 14x^3 + 15x^2 + x - 12 \\
& x^7 - x^6 - 8x^5 - 9x^4 - 14x^2 - 24x - 15 \\
& x^7 + 4x^6 - 3x^5 - 20x^4 - 15x^3 - 3x^2 + 25x + 15 \\
& x^7 + 4x^6 - x^5 + 17x^4 - 2x^3 - 6x^2 - 21x + 4 \\
& x^7 + 5x^6 + 5x^5 + 6x^4 - 4x - 1 \\
& x^7 - 4x^6 + 2x^5 - x^4 + 9x^3 - 18x^2 - 6x + 8 \\
& x^7 - 6x^6 + 13x^5 - 30x^4 + 27x^3 - 15x^2 + x + 3 \\
& x^7 - x^6 - x^5 - 15x^4 - 26x^3 - 8x^2 - 23x + 10 \\
& x^7 - 3x^6 - 16x^5 + 22x^4 + 7x^3 + 12x^2 - 22x + 5 \\
& x^7 + 9x^6 + 21x^5 - x^4 - 21x^3 - 10x^2 - 5x - 3 \\
& x^7 + 4x^6 + 6x^5 - 9x^3 - 5x^2 + 7x + 20 \\
& x^7 + 2x^6 + 2x^5 + 15x^4 + 14x^3 + 25x^2 - x - 10 \\
& x^7 + 3x^6 - 8x^5 - 3x^4 - 20x^2 + 5x + 6 \\
& x^7 + 9x^6 + 20x^5 - 2x^4 - 11x^3 + 6x^2 - 25x - 20 \\
& x^7 - 3x^6 - 11x^5 + 9x^4 + 17x^3 - 24x^2 + 9x - 1 \\
& x^7 - 4x^6 - 6x^5 + 7x^4 + 8x^3 + 11x^2 + 3x + 12 \\
& x^7 - 6x^6 + 15x^5 - 21x^4 + 14x^3 + x^2 + 6x + 20 \\
& x^7 - 2x^6 - 3x^5 - 2x^4 - 3x^3 - 12x^2 - 10x - 2 \\
& x^7 + 2x^6 - 3x^5 - 10x^4 + x^3 + 6x^2 + 13x + 10 \\
& x^7 - 3x^6 + 10x^5 - 14x^4 + 19x^3 - 7x^2 + 9 \\
& x^7 - 4x^6 - 5x^5 + 19x^4 + 16x^3 + x^2 + 6x - 4 \\
& x^7 - 3x^6 + 5x^5 - 5x^4 + 3x^3 + 15x^2 - 9x + 9 \\
& x^7 - x^6 - 18x^5 + 31x^4 + 10x^3 - 41x^2 + 5x + 20 \\
& x^7 + 9x^6 + 15x^5 - 22x^4 + 10x^3 + 16x^2 - 32x + 12 \\
& x^7 + 3x^6 - 10x^5 - 31x^4 - 9x^3 - 4x^2 - 40x - 20 \\
& x^7 + 3x^6 + 2x^5 - x^4 - 17x^3 - 21x^2 + 11x + 20 \\
& x^7 + 9x^6 + 14x^5 - 22x^4 + 24x^3 - 33x^2 + 31x - 12 \\
& x^7 + 5x^6 + 4x^5 + 5x^4 - 2x^3 - 5x^2 - 7x - 4 \\
& x^7 - 7x^6 + 12x^5 + x^4 - 12x^3 + 14x^2 - 13x - 4
\end{aligned}$$

$$\begin{aligned}
& x^7 + 9x^6 + 20x^5 - x^4 + x^3 + 11x^2 + 10x - 3 \\
& x^7 + 8x^6 + 24x^5 + 40x^4 + 30x^3 + 14x^2 - 7x - 20 \\
& x^7 + x^6 - 4x^5 + 4x^4 + 12x^3 - 10x^2 - 11x - 3 \\
& x^7 - x^6 - 7x^5 + 2x^4 - 3x^3 + 4x^2 + 11x - 5 \\
& x^7 + 5x^6 - 20x^4 - 7x^3 + 3x^2 + 18x - 8 \\
& x^7 + 4x^6 + 3x^5 - 5x^4 - 15x^3 - 19x^2 - 24x - 5 \\
& x^7 - 4x^6 - 3x^5 + 16x^4 + 5x^3 - 13x^2 + 15x + 25 \\
& x^7 + 5x^6 + 5x^5 - 28x^3 - 12x^2 - 8x + 16 \\
& x^7 - 4x^6 - x^5 - 30x^4 - 13x^3 - 27x^2 - 23x - 15 \\
& x^7 - 7x^6 + 19x^5 - 28x^4 + 10x^3 + 6x^2 + 20x - 20 \\
& x^7 - 7x^6 + 9x^5 + 11x^4 + 3x^3 - 12x^2 - 7x - 1 \\
& x^7 - 2x^6 - 8x^5 + 9x^4 + 4x^3 - 6x^2 - x + 1 \\
& x^7 + x^5 - 8x^4 - 18x^3 + 6x^2 + 6x - 9 \\
& x^7 - 12x^5 + 4x^4 - 17x^3 + 7x^2 + 6 \\
& x^7 + x^6 + 4x^5 - 6x^3 + 14x^2 + x - 5 \\
& x^7 + 8x^6 + 15x^5 - 2x^4 - 10x^3 + 8x^2 + 12x + 3 \\
& x^7 - 2x^5 + 7x^4 + 26x^3 + 14x^2 - 6x - 12 \\
& x^7 - 6x^6 + 12x^5 - 9x^4 - 10x^3 + x^2 - 3x - 2 \\
& x^7 + x^6 - 21x^5 + 12x^4 - 2x^3 + 19x^2 - 20x + 4 \\
& x^7 + 2x^6 - 21x^5 - 7x^4 - 18x^2 + 7x + 3 \\
& x^7 - 2x^6 - 11x^5 + 5x^4 + 16x^3 + x^2 + 4x - 12 \\
& x^7 - 2x^6 - 16x^5 - 7x^4 - 20x^3 - 23x^2 + 21x + 10 \\
& x^7 + 3x^6 - 11x^5 - 37x^4 - 8x^3 + 16x^2 - 28x - 20 \\
& x^7 + x^6 - 13x^5 + 31x^4 - 16x^3 - 8x^2 + 4x + 16 \\
& x^7 + 2x^6 - 13x^5 - 15x^4 + 8x^3 + 5x^2 - 18x - 20 \\
& x^7 + 2x^5 + 5x^4 + x^3 + 11x^2 + 12x - 12 \\
& x^7 - 5x^6 - x^5 + 7x^4 + 9x^3 - 5x^2 + 16x + 20 \\
& x^7 - x^6 + 3x^5 - 5x^4 - 9x^3 - 3x^2 + 5x - 15 \\
& x^7 - 5x^6 - x^5 + 20x^4 + 5x^3 - 7x^2 + 22x + 20 \\
& x^7 + 3x^6 + 5x^5 - x^4 + 2x^3 - 2x^2 + 3x - 2 \\
& x^7 - 2x^6 - 14x^5 + 18x^4 - 10x^3 + 4x^2 + 17x - 10 \\
& x^7 - x^6 - 23x^5 - 7x^4 + 26x^3 - 15x^2 + 7x + 6 \\
& x^7 - 2x^6 - 15x^5 - 28x^4 - 33x^3 - 28x^2 - 27x - 12 \\
& x^7 + 2x^6 - 16x^5 - 18x^4 - 4x^3 - 5x^2 - 11x + 15 \\
& x^7 + 5x^6 + 2x^5 - 3x^4 - 22x^3 + 5x^2 + 29x - 15 \\
& x^7 - 3x^6 - 6x^5 + 5x^4 + x^3 - 5x^2 + x + 1 \\
& x^7 + 7x^6 + 12x^5 - 9x^4 - 33x^3 + 35x^2 - 11x - 15 \\
& x^7 + x^6 - 2x^4 - 13x^3 - x^2 - 14x + 3 \\
& x^7 + 7x^6 + 10x^5 - 11x^4 - 16x^3 - 13x^2 - x + 2 \\
& x^7 - 4x^6 - 4x^5 + 18x^4 + 4x^3 - 5x^2 + 18x - 8 \\
& x^7 - 7x^6 + 8x^5 + 5x^4 + 13x^3 + 5x^2 - 8x - 2 \\
& x^7 - 4x^5 - 5x^4 + 3x^3 + 13x^2 - x - 4 \\
& x^7 - 4x^6 + 5x^5 - 8x^4 + 5x^3 + 13x^2 - 3x + 3 \\
& x^7 + 3x^6 - 3x^5 + 13x^4 + 17x^3 - 8x^2 + 8x + 8 \\
& x^7 - 4x^6 + 11x^5 - 19x^4 + 20x^3 - 8x^2 + 3x + 3 \\
& x^7 - 2x^6 - 16x^5 + 33x^4 - 32x^3 + 7x^2 + 25x - 15 \\
& x^7 - 8x^6 + 12x^5 + 20x^4 - 12x^3 - 8x^2 - 19x + 10
\end{aligned}$$

$$\begin{aligned}
& x^7 + 5x^6 + 2x^5 + x^4 + 2x^3 + 6x^2 + 6x + 1 \\
& x^7 - 7x^6 + 15x^5 - 10x^4 + 2x^3 - 5x^2 + 15x - 5 \\
& x^7 + 7x^6 + 6x^5 - 24x^4 - 4x^3 - 20x^2 + x + 1 \\
& x^7 - 9x^6 + 26x^5 - 24x^4 + 2x^3 - 2x^2 - 3x + 1 \\
& x^7 - 6x^6 + 4x^5 + 10x^4 + 7x^3 - 3x^2 - 14x - 5 \\
& x^7 - x^6 - 6x^5 + 2x^4 + 11x^2 + 2x - 6 \\
& x^7 + 3x^6 + 5x^5 + 7x^4 + 7x^3 + x^2 - 2x - 4 \\
& x^7 + 2x^6 - 15x^5 - 35x^4 - 37x^3 - 36x^2 - 9x + 10 \\
& x^7 + x^6 - 6x^5 - 19x^4 - 14x^3 + 2x^2 - x + 4 \\
& x^7 + x^6 - 7x^5 + 5x^4 + 13x^3 - 14x^2 + 9x + 3 \\
& x^7 + 9x^6 + 22x^5 + 4x^4 - 16x^3 + 14x^2 - 13x + 3
\end{aligned}$$

$$\begin{aligned}
& x^7 + 2x^6 - 14x^5 - 22x^4 + 14x^3 + 16x^2 - x + 10 \\
& x^7 - 12x^5 + 9x^4 + 2x^3 - 23x^2 - 21x - 4 \\
& x^7 - 3x^6 - 10x^5 - 7x^4 - 5x^3 + 22x^2 - 6x - 2 \\
& x^7 - 3x^6 - 6x^5 - 5x^4 - 10x^3 - 6x^2 - 19x - 12 \\
& x^7 + x^6 + 4x^5 + 3x^4 + 7x^3 - 11x^2 - 13x - 12 \\
& x^7 - 3x^6 - 2x^5 - 10x^3 + 30x^2 - 25x + 25 \\
& x^7 - 3x^6 - 9x^5 + 3x^4 - 8x^3 + 19x^2 - 18x + 3 \\
& x^7 + 4x^6 + x^5 - 7x^4 - 15x^3 - 35x^2 + 20x + 25 \\
& x^7 + x^6 - 11x^5 - 16x^4 - 2x^3 + 11x^2 + 24x + 10 \\
& x^7 + 5x^6 + 4x^5 - 3x^4 + 3x^3 - 10x^2 - 6x + 4 \\
& x^7 - 2x^5 + 14x^4 - 2x^3 + 21x^2 + 25
\end{aligned}$$

4.4 일계수가 아닌 칠차식 1형

$$\begin{aligned}
& 12x^7 - 25x^6 - 118x^5 - 93x^4 + 31x^3 + 124x^2 - 25x - 10 \\
& 25x^7 - 45x^6 + 94x^5 - 67x^4 + 132x^3 - 86x^2 + 31x - 60 \\
& 80x^7 + 128x^6 + 27x^5 + 82x^4 - 67x^3 + 76x^2 - 26x + 8 \\
& 12x^7 - 28x^6 - 39x^5 + 67x^4 + 10x^3 - 28x^2 + 25x - 15 \\
& 4x^7 - 5x^6 - 20x^5 + 59x^4 - 51x^3 - 42x^2 + 49x + 30 \\
& 25x^7 - 55x^6 + 28x^5 + 6x^4 - 14x^3 - 7x^2 + 16x + 6 \\
& 32x^7 + 72x^6 + 104x^5 + 104x^4 - 37x^3 - 86x^2 - 23x + 10 \\
& 50x^7 + 10x^6 - 77x^5 + 51x^4 - 3x^3 - 117x^2 + 9x + 27 \\
& 60x^7 - 133x^6 - 93x^5 + 231x^4 + 131x^3 - 104x^2 - 104x - 24 \\
& 10x^7 + 49x^6 + 31x^5 - 48x^4 + 44x^3 - 25x^2 - 37x + 12 \\
& 12x^7 + 40x^6 - 43x^5 - 161x^4 - 6x^3 + 158x^2 + 40x - 25 \\
& 15x^7 + 81x^6 + 77x^5 - 99x^4 - 89x^3 + 31x^2 - 40x - 20 \\
& 3x^7 - 28x^6 + 69x^5 - 37x^4 + 76x^3 - 45x^2 + 92x + 20 \\
& 15x^7 - 28x^6 + 22x^5 + 71x^4 - 113x^3 + 80x^2 + 4x - 15 \\
& 6x^7 + 6x^6 - 13x^5 - 16x^4 - 6x^3 - x - 1 \\
& 40x^7 - 4x^5 + 26x^4 - 42x^3 + 7x^2 + 17x - 10 \\
& 40x^7 + 112x^6 + 120x^5 - 27x^4 - 113x^3 - 130x^2 - 95x - 75 \\
& 24x^7 + 86x^6 + 108x^5 + 95x^4 + 126x^3 + 136x^2 + 82x + 15 \\
& 16x^7 + 16x^6 - 37x^5 - 24x^4 + 7x^3 - 18x^2 + 6x + 4 \\
& 45x^7 - 66x^6 + 72x^5 + 14x^4 - 88x^3 + 108x^2 - 56x + 16 \\
& 10x^7 + 18x^6 - 43x^5 - 55x^4 + 30x^3 + 51x^2 - 5x - 12 \\
& 10x^7 + 26x^6 - 19x^5 + 96x^4 + 20x^3 - 33x^2 + 85x + 25 \\
& 5x^7 + x^6 - 131x^5 - 102x^4 + x^3 + 39x^2 + 17x + 2 \\
& 6x^7 + 12x^6 + 29x^5 - 19x^4 - 37x^3 - 78x^2 + 16x + 15 \\
& 50x^7 - 17x^5 + 36x^4 - 18x^3 + 22x^2 + 7x - 20 \\
& 20x^7 + 37x^6 - 47x^5 + 3x^4 + 3x^3 + 10x^2 - 2x - 4 \\
& 60x^7 + 52x^6 - 101x^5 - 22x^4 - 249x^3 + 205x^2 + 60x - 45 \\
& 36x^7 - 39x^6 - 75x^5 - 65x^4 + 41x^3 + 114x^2 + 92x + 40 \\
& 10x^7 + 18x^6 - 58x^5 - 119x^4 + 29x^3 + 120x^2 + 9x - 27 \\
& 45x^7 - 96x^6 + 36x^5 - 135x^4 + 121x^3 + 51x^2 - 90x + 50 \\
& 30x^7 + 43x^6 + 112x^5 + 60x^4 + 94x^3 - 9x^2 + 42x - 36 \\
& 32x^7 + 16x^6 - 86x^5 + 264x^4 - 253x^3 + 208x^2 - 50x - 75 \\
& 80x^7 + 168x^6 + 41x^5 - 106x^4 - 133x^3 - 68x^2 + 42x + 24
\end{aligned}$$

$$\begin{aligned}
& 15x^7 - 50x^6 - 4x^5 + 121x^4 - 47x^3 - 88x^2 + 40x + 25 \\
& 2x^7 + 6x^6 - 19x^5 - 13x^4 + 50x^3 + 35x^2 - 63x - 30 \\
& 8x^7 - 30x^6 - 4x^5 + 87x^4 - 25x^3 - 9x^2 - 31x - 60 \\
& 30x^7 + 49x^6 - 56x^5 - 150x^4 - 102x^3 + 109x^2 + 148x + 60 \\
& 32x^7 + 16x^6 - 102x^5 + 26x^4 + 21x^3 - 175x^2 + 85x + 25 \\
& 20x^7 - 25x^6 + 77x^5 - 88x^4 - 22x^3 + 44x^2 - 40x - 16 \\
& 24x^7 - 74x^6 + 50x^5 - 115x^4 + 46x^3 - 6x^2 + 95x + 50 \\
& 15x^7 - 54x^6 - 64x^5 - 57x^4 - 65x^3 + 32x^2 - 14x + 15 \\
& 16x^7 - 80x^5 - 72x^4 - 109x^3 - 110x^2 + 20x - 25 \\
& 100x^7 - 120x^6 - 165x^5 + 114x^4 + 74x^3 - 28x^2 - 9x + 2 \\
& 60x^7 + 7x^5 + 3x^4 - 54x^3 - 13x^2 + 15x + 4 \\
& 25x^7 - 40x^6 - 25x^5 + 94x^4 + 162x^3 + 136x^2 + 64x + 16 \\
& 8x^7 - 44x^6 + 84x^5 - 54x^4 - 26x^3 + 50x^2 - 15x - 6 \\
& 2x^7 - 20x^6 + 59x^5 - 68x^4 + 50x^3 - 48x^2 + 53x - 15 \\
& 20x^7 - 40x^6 + 147x^5 - 117x^4 + 109x^3 + 81x^2 - 95x + 75 \\
& 8x^7 + 2x^6 - 18x^5 + 19x^4 + 151x^3 + 225x^2 + 38x - 40 \\
& 20x^7 + 63x^6 - 156x^5 + 5x^4 - 3x^3 + 14x^2 + 13x + 2 \\
& 125x^7 - 25x^6 - 230x^5 + 86x^4 + 17x^3 - 65x^2 - 24x + 36 \\
& 40x^7 + 124x^6 + 62x^5 + 237x^4 + 36x^3 + 188x^2 + 9x + 60 \\
& 16x^7 + 36x^6 - 82x^5 - 74x^4 + 88x^3 + 63x^2 - 25x - 20 \\
& 60x^7 + 15x^6 - 92x^5 + 147x^4 + x^3 - 90x^2 + 3x + 12 \\
& 100x^7 - 30x^6 + 207x^5 + 55x^4 + 125x^3 + 95x^2 + 48x + 30 \\
& 6x^7 - 14x^6 + 9x^5 - 21x^4 + 12x^3 + 10x^2 + 18x + 15 \\
& 20x^7 - 4x^6 - 63x^5 - 53x^4 - 45x^3 - 25x^2 - 7x - 3 \\
& 10x^7 - 10x^6 - 65x^5 + 11x^4 + 88x^3 + 23x^2 + 30x + 30 \\
& 9x^7 + 27x^6 + 47x^5 + 54x^4 + 42x^3 + 22x^2 + 4x + 20 \\
& 6x^7 - 26x^6 + 25x^5 + 33x^4 - 108x^3 + 86x^2 + 20x - 15 \\
& 60x^7 + 149x^6 + 201x^5 + 231x^4 + 224x^3 + 149x^2 + 56x + 10 \\
& 32x^7 - 72x^6 - 60x^5 + 50x^4 + 123x^3 + 97x^2 + 35x + 20 \\
& 4x^7 + 4x^6 - x^5 - x^4 + 4x^3 + 19x^2 - 7x - 4 \\
& 15x^7 + 68x^6 - 19x^5 - 113x^4 - 18x^3 + 9x^2 + 76x - 30 \\
& 60x^7 + 148x^6 + 63x^5 - 11x^4 - 37x^3 - 87x^2 - 33x + 9 \\
& 50x^7 - 185x^6 + 30x^5 + 144x^4 + 149x^3 - 42x^2 - 128x - 32
\end{aligned}$$

$$\begin{aligned}
& 6x^7 + 36x^6 + 15x^5 + 10x^4 + 47x^3 - 78x^2 + 57x - 18 \\
& 20x^7 + 60x^6 + 45x^5 - 21x^4 + 41x^3 - 100x^2 + 20x + 25 \\
& 50x^7 + 35x^6 - 65x^5 - 37x^4 - 82x^3 + 37x^2 + 48 \\
& 8x^7 - 30x^6 - 5x^5 + 63x^4 - 25x^3 - 16x^2 + 52x + 16 \\
& 10x^7 + 21x^6 - 141x^5 - 44x^4 + 283x^3 - 49x^2 - 146x + 60 \\
& 5x^7 - 3x^6 - 6x^5 - 29x^4 - 26x^3 + 35x^2 + 21x + 18 \\
& 12x^7 + 24x^6 - 2x^5 - 42x^4 - 40x^3 - 19x^2 - 17x - 6 \\
& 20x^7 + 28x^6 - 91x^5 + 73x^4 - 65x^3 - 15x^2 + 50x - 12 \\
& 6x^7 - 12x^6 - 25x^5 + 21x^4 + 39x^3 + 9x^2 - 7x - 3 \\
& 12x^7 - 23x^6 + 81x^5 - 67x^4 + 107x^3 - 13x^2 + 63x + 36 \\
& 10x^7 - 13x^6 - 69x^5 + 91x^4 - 6x^3 + 6x^2 + 16x - 8 \\
& 8x^7 - 16x^6 - 10x^5 + 6x^4 - 15x^3 + 14x^2 + 33x + 10 \\
& 24x^7 - 10x^6 + 68x^5 - 25x^4 + 66x^3 - 18x^2 + 19x - 4 \\
& 10x^7 - 20x^6 - 51x^5 + 42x^4 + 68x^3 + 95x^2 + 36x + 30 \\
& 10x^7 + 15x^6 - 98x^5 + 155x^4 - 118x^3 + 2x^2 + 18x - 24 \\
& 100x^7 + 30x^6 - 123x^5 + 50x^4 + 29x^3 - 36x^2 + 15x - 2 \\
& 3x^7 - 4x^6 + 11x^5 - 25x^4 - 2x^3 - 49x^2 - 24x - 30 \\
& 16x^7 - 20x^6 + 42x^5 - 17x^4 + 37x^3 + 28x^2 + 6x + 40 \\
& 16x^7 + 48x^6 + 124x^5 + 156x^4 + 146x^3 + 31x^2 - 21x - 45 \\
& 3x^7 + 2x^6 - x^5 + 10x^4 - 22x^3 + 38x^2 - 32x + 8 \\
& 12x^7 + 25x^6 + 20x^5 - 11x^4 + 83x^2 + 24x - 9 \\
& 125x^7 + 125x^6 - 200x^5 - 75x^4 + 105x^3 - 40x^2 - 20x + 16 \\
& 4x^7 + 8x^6 - 25x^5 - 10x^4 - 6x^3 - 21x^2 - 4x + 12 \\
& 100x^7 - 5x^6 + 156x^5 + 67x^4 + 137x^3 + 122x^2 + 36x + 80 \\
& 2x^7 + 10x^6 + 3x^5 - 47x^4 - 106x^3 - 111x^2 - 35x + 20 \\
& 45x^7 - 15x^6 - 97x^5 - 59x^4 + 38x^3 + 88x^2 + 56x + 16 \\
& 4x^7 - 27x^6 + 39x^5 - 57x^4 + 20x^3 - 8x^2 + 3x - 2
\end{aligned}$$

$$\begin{aligned}
& 30x^7 - 37x^6 - 14x^5 + 20x^4 + 30x^3 + 33x^2 - 42x - 36 \\
& 30x^7 + 85x^6 + 93x^5 + 88x^4 + 52x^3 + 21x^2 - 2x - 3 \\
& 10x^7 + 38x^6 + 98x^5 + 183x^4 + 135x^3 + 133x^2 + 66x + 30 \\
& 15x^7 + 65x^6 - 147x^5 - 152x^4 + 133x^3 + 140x^2 - 20x - 48 \\
& 20x^7 + 60x^6 - 105x^5 - 16x^4 - 88x^3 - 105x^2 + 9x + 5 \\
& 20x^7 + 29x^6 - 142x^5 - 44x^4 + 100x^3 + 118x^2 + 40x - 25 \\
& 45x^7 + 12x^6 - 51x^5 - 32x^4 - 98x^3 - 4x^2 - 8x + 16 \\
& 6x^7 - 29x^6 + 30x^5 - 5x^4 - 27x^3 + 98x^2 - 53x + 60 \\
& 27x^7 + 36x^6 + 33x^5 - 4x^4 - 67x^3 - 148x^2 - 129x - 36 \\
& 30x^7 - 44x^6 - 107x^5 + 185x^4 - 12x^3 - 129x^2 + 104x - 30 \\
& 24x^7 + 18x^6 - 23x^5 + 38x^4 + 22x^3 + 16x^2 - 27x - 12 \\
& 8x^7 + 8x^5 - 13x^4 + 35x^3 + 21x^2 - 16x + 2 \\
& 12x^7 + 16x^6 - 37x^5 - 51x^4 + 6x^3 + 27x^2 + 33x + 10 \\
& 36x^7 - 9x^6 + 2x^5 + 94x^4 - 17x^3 + 16x^2 + 23x + 15 \\
& 4x^7 + 16x^6 + 55x^5 + 113x^4 + 140x^3 + 120x^2 - 50x - 125 \\
& 10x^7 - 26x^6 + 27x^5 - 18x^4 - 68x^3 + 72x^2 - 85x + 25 \\
& 75x^7 - 130x^6 + 51x^5 - 32x^4 - 35x^3 + 21x^2 + x - 1 \\
& 45x^7 + 3x^6 - 256x^5 - 87x^4 + 287x^3 + 36x^2 - 98x + 20 \\
& 9x^7 - 45x^6 - 13x^5 + 129x^4 - 114x^3 - 176x^2 + 88x + 80 \\
& 45x^7 + 24x^6 + 30x^5 - 19x^4 + 8x^2 - 4 \\
& 10x^7 + 49x^6 + 7x^5 - 75x^4 + 44x^3 - 95x^2 - 85x + 25 \\
& 80x^7 - 36x^6 - 134x^5 + 59x^4 + 74x^3 - 9x^2 - 20x - 4 \\
& 32x^7 + 16x^6 - 154x^5 - 87x^4 + 204x^3 + 187x^2 - 90x - 100 \\
& 10x^7 - 46x^6 + 117x^5 - 209x^4 + 252x^3 - 198x^2 + 40x + 25 \\
& 15x^7 + 74x^6 + 77x^5 - 26x^4 - 9x^3 - 25x^2 - 11x - 5 \\
& 50x^7 - 5x^6 - 50x^5 + 134x^4 - 88x^3 - 128x^2 + 130x - 25 \\
& 15x^7 + 65x^6 + 83x^5 + 8x^4 - 29x^3 + 29x^2 - 9x + 6
\end{aligned}$$

4.5 일계수가 아닌 칠차식 2형

$$\begin{aligned}
& 5x^7 - 17x^6 + 36x^5 - 26x^4 + 20x^3 + 13x^2 + x + 4 \\
& 2x^7 - 23x^5 - 6x^4 + 15x^3 - 35x^2 + 27x - 10 \\
& 20x^7 + x^6 + 6x^5 - 11x^4 + 26x^3 - 21x^2 + 12x - 5 \\
& 5x^7 - 3x^6 + 15x^5 + 33x^4 + 32x^3 + 30x^2 + 28x + 16 \\
& 6x^7 - 4x^6 - 5x^5 - 24x^4 - 2x^3 - 4x^2 + 3x - 6 \\
& 20x^7 + 3x^6 + 16x^5 + 53x^4 + 22x^3 + 17x^2 + 40x + 16 \\
& 12x^7 - 16x^6 + 3x^5 + 12x^4 - 11x^3 - 3x^2 + 14x - 3 \\
& 3x^7 - 11x^6 - 9x^5 + x^4 - 8x^3 - 27x^2 + 28x + 15 \\
& 10x^7 - 8x^6 - 6x^5 + x^4 - x^3 - x - 1 \\
& 25x^7 - 25x^6 - 10x^5 - 5x^4 - 3x^3 - 3x^2 - 4x + 1 \\
& 8x^7 + 14x^6 - 3x^5 - 17x^4 - 2x^3 + 10x^2 - 8x - 15 \\
& 3x^7 + 3x^6 + 3x^5 - 4x^4 - 22x^3 + 16x^2 - 16x + 16 \\
& 8x^7 + 26x^6 + 37x^5 + 30x^4 + 17x^3 + 4x^2 - x - 2 \\
& 5x^7 - 24x^6 - 22x^5 - 39x^4 - 67x^3 - 40x^2 - 40x - 25 \\
& 10x^7 + x^6 + 2x^5 + 30x^4 - 5x^3 - 24x^2 - 14x - 8 \\
& 20x^7 - 7x^6 - 3x^5 + 46x^4 - 50x^3 + 17x^2 + 21x - 20 \\
& 4x^7 + 7x^6 - 2x^5 + 14x^4 + 19x^3 + 2x^2 - 15x + 25
\end{aligned}$$

$$\begin{aligned}
& 2x^7 + 6x^6 - 17x^5 + 10x^4 + 39x^3 - 28x^2 + 12 \\
& 8x^7 + 8x^6 - 10x^5 + 32x^4 - x^3 - 14x^2 + 8x - 1 \\
& 20x^7 - 10x^6 + 22x^5 - 17x^4 + 29x^3 - 5x^2 + 5x - 12 \\
& 15x^7 + 32x^6 - 15x^5 - 37x^4 + 12x^3 + 4x^2 - 16x - 6 \\
& 20x^7 + 16x^6 + 27x^5 + 13x^4 - 19x^3 + 3x^2 - 24x + 12 \\
& 4x^7 - 3x^6 + 8x^5 + x^4 - 17x^3 + 18x^2 - 15x + 6 \\
& 5x^7 + 16x^6 - 19x^5 - 36x^4 + 4x^3 + 31x^2 + 7x - 4 \\
& 12x^7 + 35x^6 + 32x^5 + 5x^4 - 12x^3 - 7x^2 - 4x - 1 \\
& 2x^7 - 6x^6 - 3x^5 + 5x^4 + 6x^3 + 27x^2 + 16x + 16 \\
& 8x^7 - 6x^6 + 22x^5 + 9x^4 + 4x^3 + 24x^2 + 6x - 3 \\
& 12x^7 - 24x^6 + 4x^5 + 19x^4 - 7x^3 + x^2 - 13x + 10 \\
& 15x^7 - 25x^6 + 50x^5 - 69x^4 + 41x^3 - 30x^2 - 10x + 25 \\
& 12x^7 - 15x^6 + 11x^5 - 5x^4 - 28x^3 + 25x^2 - 7x + 5 \\
& 20x^7 - 3x^6 + 35x^5 + 28x^4 + 22x^3 + 36x^2 + 25x + 6 \\
& 12x^7 - 10x^6 - 22x^5 - 4x^4 - 25x^3 + 6x^2 - 18x + 5 \\
& 20x^7 - 21x^6 + 19x^5 - 8x^4 + 19x^3 - 13x^2 + 4 \\
& 8x^7 - 16x^6 - 26x^5 - 22x^4 + 27x^3 + 33x^2 - 6x - 10
\end{aligned}$$

$$\begin{aligned}
&15x^7 - 19x^6 + 15x^5 - 6x^4 + 10x^3 + 3x^2 - 15x + 9 \\
&10x^7 - 23x^6 + 41x^5 - 8x^4 - 12x^3 + 27x^2 + 3x - 2 \\
&\quad 12x^7 - 20x^6 - 13x^5 - 4x^4 + 4x^3 - 5x + 1 \\
&\quad 3x^7 + 3x^6 + 9x^5 + 19x^4 + 8x^3 + 18x^2 + 7x + 5 \\
&2x^7 - 3x^6 - 18x^5 - 33x^4 - 26x^3 + 2x^2 + 15x + 25 \\
&8x^7 + 18x^6 + 17x^5 + 13x^4 + 19x^3 + 11x^2 - 6x + 4 \\
&\quad 12x^7 + 5x^6 - 2x^5 + x^4 + 11x^3 + 2x^2 - 6x - 2 \\
&20x^7 + 6x^6 - 27x^5 + 32x^4 + 19x^3 - 7x^2 - 11x + 12 \\
&\quad 3x^7 - 11x^6 - 12x^5 + x^4 + 14x^3 + 20x^2 + 13x - 10 \\
&5x^7 - 25x^6 - 21x^5 + 2x^4 - 10x^3 + 60x^2 + 10x - 25 \\
&\quad 3x^7 + 4x^6 - 11x^5 - 15x^4 - 35x^3 - 4x^2 - 6x + 10 \\
&\quad 8x^7 - 10x^6 - 7x^5 - 4x^4 + 8x^3 - 13x^2 + 6x - 2 \\
&6x^7 - 13x^6 + 23x^5 - 26x^4 + 19x^3 - 24x^2 + 4x + 5 \\
&\quad 6x^7 - 11x^6 + 3x^5 + 7x^4 - 21x^3 + 9x^2 - 3x - 4 \\
&\quad 9x^7 - 3x^5 + 12x^4 - 32x^3 + 25x^2 - 21x + 4 \\
&\quad 3x^7 + x^6 - 8x^5 - 8x^4 - 8x^3 + x^2 + 26x + 8 \\
&3x^7 - 13x^6 - 5x^5 + 30x^4 - 13x^3 - 24x^2 + 16x + 10 \\
&\quad 9x^7 + 6x^6 + 7x^5 + 23x^4 + 17x^3 + 10x^2 + 15x + 12 \\
&20x^7 - 24x^6 + 45x^5 - 46x^4 + 45x^3 - 33x^2 + 10x - 1 \\
&15x^7 - 15x^6 + 11x^5 - 8x^4 - 42x^3 - 13x^2 - 23x - 15 \\
&\quad 16x^7 - 40x^6 + 33x^5 - 10x^4 + x^3 - 25x^2 - 22x + 5 \\
&\quad 8x^7 - 24x^6 + 36x^5 - 26x^4 + 24x^3 - 12x^2 + 4x + 15 \\
&16x^7 - 16x^6 - 28x^5 + 24x^4 + 24x^3 - 11x^2 - 13x + 10 \\
&\quad 6x^7 + 7x^6 - 6x^5 - 30x^4 - 21x^3 + 11x^2 + 33x + 20 \\
&\quad 5x^7 - 21x^6 - 29x^5 - 14x^4 + 13x^3 + 10x^2 + 2x - 2 \\
&\quad 4x^7 - 12x^6 + 21x^5 + 3x^4 - 19x^3 + 4x^2 - 17x + 6 \\
&\quad 4x^7 - 2x^6 + 16x^5 - 2x^4 + 9x^3 + 4x^2 - 14x - 6 \\
&12x^7 + 12x^6 + 35x^5 + 7x^4 + 25x^3 - 15x^2 + 11x - 12 \\
&\quad 15x^7 + 25x^6 - 2x^5 - 16x^4 - 16x^3 - 2x^2 + x + 3 \\
&15x^7 - 11x^6 + 7x^5 + x^4 - 27x^3 + 6x^2 - 12x + 20 \\
&\quad 3x^7 + 3x^6 + 13x^5 + 28x^4 - 4x^3 + 14x^2 - 3x - 9 \\
&\quad 3x^7 + 12x^6 + 14x^5 + 8x^4 - x^3 - 40x^2 - 3x + 12 \\
&\quad 12x^7 - 11x^6 + 11x^5 - 12x^3 - 9x^2 - 35x - 20 \\
&\quad 5x^7 - 3x^6 - 12x^5 + 10x^4 + 4x^3 + 5x^2 + 3x - 9 \\
&12x^7 + 29x^6 + 47x^5 + 12x^4 - 23x^3 - 42x^2 - 2x + 15 \\
&\quad 16x^7 - 8x^5 + 5x^3 - 20x^2 + x - 10 \\
&\quad 4x^7 - 5x^6 - 15x^5 + 9x^4 + x^3 - 11x^2 + 5x - 2 \\
&25x^7 + 35x^6 + 15x^5 - 12x^4 - 8x^3 - 3x^2 + 6x + 6 \\
&6x^7 - 6x^6 - 17x^5 + 23x^4 + 16x^3 - 29x^2 + 3x + 10 \\
&10x^7 + 17x^6 + 9x^5 - 9x^4 - 2x^3 + 14x^2 - 11x - 10 \\
&15x^7 + 19x^6 + 3x^5 + 9x^4 - 20x^3 - 28x^2 - 17x - 15 \\
&12x^7 + 21x^6 + 13x^5 - 14x^4 - 18x^3 + 6x^2 + 16x - 8 \\
&\quad 2x^7 - 2x^5 + 25x^4 - 32x^3 - 21x^2 + 21x + 5
\end{aligned}$$

$$\begin{aligned}
&15x^7 + 8x^6 - 9x^5 + 18x^4 + 31x^3 - 5x^2 + 5x + 25 \\
&20x^7 - 7x^6 - 18x^5 + 12x^4 + 31x^3 - 21x^2 - 9x + 12 \\
&\quad 25x^7 - 15x^6 - 15x^5 - 15x^4 - 9x^3 + 17x^2 + 4x + 6 \\
&20x^7 - 29x^6 + 12x^5 - 16x^4 + 19x^3 - 15x^2 + 15x - 9 \\
&\quad 12x^7 + 2x^6 + 3x^5 - 23x^4 - 22x^3 - 2x^2 + 11x + 15 \\
&12x^7 + 7x^6 + 32x^5 + 22x^4 + 17x^3 + 14x^2 - 12x - 8 \\
&\quad 8x^7 - 6x^6 - 17x^5 + 3x^4 + 9x^3 + 6x^2 + 2x + 1 \\
&\quad 3x^7 + 8x^6 - 16x^5 + 2x^4 + 11x^3 - 13x^2 - 2x - 8 \\
&\quad 4x^7 + 2x^5 + 16x^4 + 24x^3 + 19x^2 + 19x + 6 \\
&\quad 6x^7 + 9x^6 + 5x^5 - 8x^4 + 16x^3 - 3x^2 - 7x + 6 \\
&\quad 3x^7 + 3x^6 - 9x^5 - 22x^4 + 7x^3 + 21x^2 + 11x + 2 \\
&\quad 8x^7 + 22x^6 + 31x^5 + 6x^4 + 5x^2 + 5x - 25 \\
&15x^7 - 14x^6 - 15x^5 - 23x^4 + 4x^3 - 19x^2 - 8x - 12 \\
&10x^7 - 16x^6 + 25x^5 - 16x^4 + 2x^3 - 11x^2 + 5x - 20 \\
&16x^7 - 28x^6 + 6x^5 - 36x^4 + 35x^3 - 9x^2 + 23x - 12 \\
&4x^7 - 12x^6 - 7x^5 + 36x^4 - 22x^3 - 24x^2 + 29x - 12 \\
&\quad 5x^7 + 7x^6 + 26x^4 + 12x^3 - 11x^2 + 15x - 5 \\
&5x^7 + 12x^6 - 24x^5 + 4x^4 + 11x^3 - 22x^2 + 10x - 4 \\
&\quad 8x^7 - 14x^6 - 4x^5 - 13x^4 + 5x^3 - 7x^2 + 9x - 20 \\
&\quad 4x^7 - 4x^6 - 3x^5 + 36x^4 - 23x^3 + 5x^2 - 9x + 20 \\
&\quad 4x^7 + 18x^6 - 19x^5 - 2x^4 - 9x^3 + 19x^2 - 25 \\
&16x^7 - 24x^6 - 27x^5 + 40x^4 - 12x^3 - 15x^2 - x - 5 \\
&\quad 20x^7 + 3x^6 - 7x^5 - 31x^4 - 24x^3 - 5x^2 + 5x + 3 \\
&9x^7 + 18x^6 + 20x^5 + 34x^4 + 26x^3 + 36x^2 + 5x + 20 \\
&\quad 8x^7 + 6x^6 - 35x^5 - 3x^4 - 6x^3 + 12x^2 + 2x + 8 \\
&\quad 2x^7 - 3x^6 - 2x^5 - 26x^4 + x^3 - 16x^2 + 2x - 8 \\
&4x^7 + 17x^6 - 22x^5 + 32x^4 - 6x^3 - 31x^2 + 10x + 4 \\
&\quad 8x^7 - 22x^6 - 9x^5 + 30x^4 - 31x^3 - 3x^2 + 24x - 9 \\
&2x^7 + 9x^6 + 9x^5 + 26x^4 + 48x^3 + 34x^2 + 27x + 15 \\
&\quad 10x^7 + 2x^6 - 20x^5 + 39x^4 - 2x^3 - 8x^2 - 11x + 4 \\
&\quad 12x^7 - 15x^6 + 5x^5 - 19x^4 + 5x^3 - 14x^2 - 6x + 4 \\
&3x^7 + 13x^6 + 2x^5 - 13x^4 + 20x^3 + 2x^2 - 17x + 12 \\
&9x^7 - 12x^6 + 15x^5 - 41x^4 + 17x^3 - 10x^2 + 5x + 5 \\
&\quad 4x^7 - 8x^6 + 2x^5 - 20x^4 + 8x^3 - 27x^2 - 7x - 15 \\
&25x^7 - 25x^6 + 10x^5 - 40x^4 + 37x^3 - 27x^2 + 32x - 20 \\
&\quad 2x^7 + x^6 + 7x^5 - 6x^4 - 10x^3 - 6x^2 - 9x - 4 \\
&25x^7 + 35x^6 + 10x^5 - 32x^4 - 24x^3 - 18x^2 - 17x - 15 \\
&\quad 10x^7 + 10x^6 + 2x^5 + 17x^4 + 15x^3 - 5x^2 - 22x + 8 \\
&\quad 4x^7 - 11x^6 + 18x^5 + 7x^4 - 35x^3 - 7x^2 + 9x + 3 \\
&\quad 10x^7 - 2x^6 + 7x^5 - 27x^4 - 10x^3 + 10x^2 + 5x + 4 \\
&8x^7 + 8x^6 - 16x^5 + 20x^4 + 22x^3 - 28x^2 + 26x - 15 \\
&\quad 5x^7 - 13x^6 + 18x^5 - 7x^4 - 14x^3 + 7x^2 - 5x + 4 \\
&\quad 2x^7 + 3x^6 + 2x^5 - 4x^3 - 4x^2 + 16
\end{aligned}$$

4.6 일계수가 아닌 칠차식 3형

$$6x^7 - 11x^6 - 3x^5 + 32x^4 - 29x^3 + 5x^2 + 15x - 25$$

$$25x^7 + 25x^6 - 19x^5 - 31x^4 + 2x^3 + 27x^2 - 5x - 4$$

$$\begin{aligned}
&20x^7 + 35x^6 + 16x^5 + 22x^4 + 30x^3 + 37x^2 + 19x + 5 \\
&10x^7 + 23x^6 + 34x^5 + 27x^4 + 10x^3 + 5x^2 - 15x - 4 \\
&6x^7 - 9x^6 - 37x^5 + 7x^4 + 26x^3 + 25x^2 - 17x - 5 \\
&20x^7 + 25x^6 + 12x^5 + 5x^4 - 25x^3 + 4x^2 - 15x + 6 \\
&3x^7 + 10x^6 - x^5 + 9x^4 - 13x^3 + 2x^2 + 7x + 10 \\
&6x^7 - 5x^6 - 2x^5 + 2x^3 - 20x^2 + 8x - 16 \\
&2x^7 - 2x^6 + 2x^5 - 9x^3 - 14x^2 - 9 \\
&6x^7 - 19x^6 + 19x^5 - 3x^4 + 3x^3 - 7x^2 - 25x + 20 \\
&4x^7 - 24x^6 + 40x^5 - 20x^4 - 5x^3 + 24x^2 - 20x - 5 \\
&5x^7 + 5x^6 + 12x^5 - 8x^4 - 13x^3 - 16x^2 + x - 6 \\
&5x^7 - 23x^6 - 6x^4 + 7x^3 - 12x^2 + 8x + 15 \\
&4x^7 + 11x^6 + 13x^5 + 8x^4 + 5x^3 - 19x^2 - 24x - 12 \\
&3x^7 + 5x^6 - 7x^5 - 2x^4 + 15x^3 - 13x^2 + 7x - 2 \\
&4x^7 - 2x^6 + 5x^5 + 8x^4 + 8x^3 - 35x^2 - 7x + 12 \\
&5x^7 + 3x^6 + 21x^5 - 32x^4 - 2x^3 - 17x^2 + 10x + 10 \\
&4x^7 + 2x^6 + 6x^5 - 7x^4 - 11x^3 + 2x^2 - 11x - 15 \\
&4x^7 - 24x^6 + 31x^5 - 27x^4 + 22x^3 + 15x^2 - 23x + 6 \\
&2x^7 - 2x^6 - x^5 + 6x^4 + 17x^3 + 21x^2 + 13x + 4 \\
&15x^7 - 2x^6 - 2x^5 - 9x^4 + 14x^3 - 11x^2 + 5x - 1 \\
&20x^7 - 33x^5 - 5x^4 + 14x^3 - 14x^2 + 11x + 3 \\
&2x^7 + 2x^6 - 12x^5 - 14x^4 + 8x^3 + 11x^2 + 9x + 9 \\
&2x^7 + 10x^6 - 3x^5 - 2x^4 + 13x^3 - 14x^2 + 23x - 4 \\
&3x^7 + 3x^6 + 4x^5 + 17x^4 - 10x^3 + 38x^2 - 19x + 20 \\
&8x^7 - 16x^6 + 6x^5 + 2x^4 - 27x^3 + 28x^2 - 31x + 20 \\
&4x^7 + 4x^6 + 21x^5 + 12x^4 + 30x^3 + 9x^2 + 11x + 5 \\
&15x^7 + 3x^6 + 14x^5 - x^4 + 14x^3 - 3x^2 - 16x - 16 \\
&20x^7 + 3x^6 - 19x^5 - 3x^4 - 8x^3 + 24x^2 - 2x - 5 \\
&8x^7 - 14x^6 + 32x^5 - 34x^4 + 33x^3 - 34x^2 + 17x - 20 \\
&9x^7 - 10x^3 + 15x^2 - 3x + 5 \\
&6x^7 - 9x^6 - 4x^5 + 2x^4 - 4x^3 + 14x^2 + 3x - 2 \\
&25x^7 - 50x^6 + 5x^5 + 40x^4 - 40x^3 - x^2 + 21x + 4 \\
&3x^7 - 13x^6 - 14x^5 + 26x^4 - 3x^3 - 16x^2 + 19x + 12 \\
&4x^7 - 3x^6 - 14x^5 + 16x^4 + 30x^3 + x^2 - 40x + 16 \\
&12x^7 + 5x^6 - 24x^5 - 60x^4 - 30x^3 - 4x^2 + 5x - 12 \\
&6x^7 + 6x^6 + 2x^5 - 11x^4 + 19x^3 - 22x^2 + 13x - 3 \\
&5x^7 - 8x^6 - x^5 + 16x^4 + 22x^3 + 29x^2 + 2x - 10 \\
&3x^7 - 13x^6 + 6x^5 + 5x^4 + 7x^3 - 5x^2 - 15x + 25 \\
&15x^7 - 7x^6 + 7x^5 + 13x^4 + x^3 - 12x^2 - 7x - 5 \\
&2x^7 - 13x^6 + 18x^5 - 18x^4 - 24x^3 - 8x^2 - 6x - 1 \\
&8x^7 + 22x^6 + 31x^5 + 7x^4 - 33x^3 + 4x^2 + 14x - 4 \\
&5x^7 - 5x^6 - 19x^5 - 8x^4 - 11x^3 - 8x^2 + 6x + 4 \\
&12x^7 + x^6 - 30x^5 - 16x^4 + 28x^3 - 4x^2 + 4x + 15 \\
&16x^7 - 8x^6 + 33x^5 - 7x^4 + 40x^3 - 11x^2 + 16x - 16 \\
&25x^7 + 5x^6 - 12x^5 + 55x^4 - 14x^3 - 14x^2 + 13x - 10 \\
&25x^7 + 30x^6 + 35x^5 + 25x^4 - 12x^3 + 14x^2 - x + 3 \\
&10x^7 - 12x^6 + 14x^5 - 9x^4 - 4x^3 - 41x^2 - 36x - 20 \\
&12x^7 - 23x^6 - 3x^5 + 25x^4 - 26x^3 + 28x^2 - 14x + 2
\end{aligned}$$

$$\begin{aligned}
&2x^7 + 3x^6 + 2x^5 + 6x^4 - 8x^3 - 5x^2 - 8x - 10 \\
&4x^7 - 6x^6 - 12x^5 - 19x^4 + 19x^3 + 10x^2 + 29x + 10 \\
&2x^7 - 3x^6 + 6x^5 + x^4 + 3x^3 + 5x^2 + 8x + 4 \\
&2x^7 + 7x^6 + 6x^5 - 13x^4 - 38x^3 - 50x^2 - 45x - 25 \\
&20x^7 + 11x^6 + 13x^5 - 17x^4 + 23x^3 - 13x^2 - 3x + 2 \\
&25x^7 + 15x^6 - 40x^5 + 5x^4 + 25x^3 + 7x^2 - 10x - 3 \\
&15x^7 + 2x^6 - 2x^5 + 21x^4 - 2x^3 + 12x^2 - x + 15 \\
&2x^7 - 8x^6 + 5x^5 - 12x^4 - 8x^3 + 4x^2 - 5x + 4 \\
&10x^7 + 7x^6 + 18x^5 - 3x^4 + 15x^3 - 5x^2 - x + 4 \\
&4x^7 + 2x^6 + 8x^5 + 10x^4 + 20x^3 + 5x^2 - 3x - 6 \\
&10x^7 - 23x^6 - 6x^5 + 23x^4 - 11x^3 - 42x^2 - x + 20 \\
&12x^7 + 11x^6 + 6x^5 + 18x^4 + 7x^3 + 3x^2 + 9x - 12 \\
&3x^7 + 13x^6 - 20x^5 + 24x^4 - 21x^3 - 2x^2 + 2x - 8 \\
&3x^7 + 19x^6 + 21x^5 + x^4 - 27x^3 - 33x^2 - 16x - 12 \\
&8x^7 + 12x^6 - 10x^5 - 3x^4 + 18x^3 + 14x^2 + 9x - 4 \\
&5x^7 - 7x^6 - 12x^5 - 18x^4 + 3x^3 - 2x + 4 \\
&4x^7 + 4x^6 - x^5 - 24x^4 - 11x^3 + 17x^2 + 29x + 15 \\
&5x^7 - 5x^6 + 12x^5 + 35x^4 - 26x^3 + 27x^2 - 17x + 5 \\
&8x^7 - 28x^6 + 42x^5 - 21x^4 - 17x^3 + 32x^2 - 13x + 4 \\
&12x^7 + 3x^6 - 3x^5 + 6x^4 - 20x^3 - x^2 + 2x - 8 \\
&25x^7 - 25x^6 + 19x^5 - 12x^4 - 22x^3 + 34x^2 + x - 10 \\
&20x^7 - 3x^6 - 18x^5 - 9x^4 + 2x^3 - 6x^2 + 4x + 8 \\
&4x^7 - 14x^6 - 2x^5 + 23x^4 + 9x^3 + 14x^2 - 4x - 10 \\
&12x^7 + 20x^6 + 5x^5 + 11x^4 - 23x^3 - 19x^2 - 15x - 12 \\
&20x^7 - 6x^6 + 7x^4 + 12x^3 + 7x^2 + 8x - 3 \\
&5x^7 + 8x^6 + 14x^5 - 12x^4 - 13x^3 - 14x^2 - 28x - 16 \\
&3x^7 - 11x^6 + 2x^5 + 11x^4 + 11x^3 + 5x^2 + 8x + 3 \\
&16x^7 - 32x^6 + 39x^5 - 10x^4 - 16x^3 + 21x^2 - 12x + 4 \\
&20x^7 + 19x^6 - 22x^5 - 26x^4 + 28x^3 + 5x^2 - 27x + 10 \\
&10x^7 - 10x^6 + 3x^5 + 3x^4 - 14x^3 + 11x^2 + 5x - 5 \\
&4x^7 - 5x^6 + 16x^5 - 22x^4 - x^3 - 5x^2 - 4x + 12 \\
&20x^7 - 18x^5 + 7x^4 + 14x^3 + 6x^2 - 17x + 12 \\
&20x^7 - 27x^6 + 30x^5 - 20x^4 + 22x^3 - 3x^2 + 6x + 8 \\
&5x^7 - 22x^6 + 16x^5 - 17x^4 + 12x^3 + 7x^2 + 5x - 2 \\
&25x^7 + 5x^6 + 14x^5 - 13x^4 + 20x^3 - 16x^2 - 5x - 10 \\
&3x^7 - 6x^6 - 2x^5 + 4x^4 - x^3 + 2x^2 + 7x + 3 \\
&6x^7 - 6x^6 + 20x^5 - 14x^4 + 16x^3 + 7x^2 + 20 \\
&25x^7 + 25x^6 - 19x^5 - 16x^4 - 19x^3 + 7x^2 + 25x - 12 \\
&2x^7 + 10x^6 - 13x^5 - 17x^4 + 9x^3 + 11x^2 + 9x - 12 \\
&3x^7 - 10x^6 + 19x^5 - 10x^4 - 14x^3 + 26x^2 - 16x + 4 \\
&15x^7 - 37x^6 + 39x^5 - 8x^4 - 6x^3 + 4x^2 + 4x - 3 \\
&20x^7 + 7x^6 - 35x^5 - 17x^4 + 14x^3 + 16x^2 - 2x - 8 \\
&2x^7 + 2x^6 - 9x^5 - 3x^4 - 14x^3 - 20x^2 + 14x + 4 \\
&6x^7 - 4x^6 - 20x^5 + 17x^4 + 24x^3 + x^2 - 20x + 6 \\
&20x^7 + 25x^6 - 9x^5 - 36x^4 - 48x^3 - 40x^2 - 15x + 4 \\
&8x^7 + 10x^6 - 13x^5 - 6x^4 + 3x^3 - 22x^2 - x + 12 \\
&10x^7 + 3x^6 - 20x^5 - 20x^4 - 9x^3 + 13x^2 - 16
\end{aligned}$$

$$\begin{aligned}
& 6x^7 - 7x^6 + 12x^5 - 22x^4 - 8x^2 - 20x - 25 \\
& 12x^7 - 16x^6 + 9x^5 - 15x^4 - 29x^3 - 4x^2 + 13x + 10 \\
& 3x^7 + 6x^6 + 10x^5 - 5x^4 - 13x^3 - 14x^2 - 20x - 16 \\
& 10x^7 + 8x^6 - 21x^5 - 8x^4 + 11x^3 + 4x^2 - 3x - 15 \\
& 4x^7 + 19x^6 + 2x^5 + 9x^4 - 27x^3 - 28x^2 + 5x + 2 \\
& 25x^7 - 5x^6 + 5x^5 - 23x^4 + 23x^3 + 23x^2 - 14x - 8 \\
& 4x^7 + 10x^6 + 20x^5 + 9x^4 - 11x^3 - 36x^2 - 17x + 10 \\
& 25x^7 + 40x^6 + 45x^5 + 44x^4 + 34x^3 + 32x^2 + 18x + 9 \\
& 5x^7 - 13x^6 + x^5 + 6x^4 - 31x^3 + 14x^2 - 12x - 5 \\
& 16x^7 - 4x^6 - 12x^5 + 25x^4 + 10x^3 - 5x^2 - 25x - 25 \\
& 5x^7 + 15x^6 - 30x^5 + 10x^4 + 2x^2 + 8x - 4 \\
& 6x^7 - 19x^6 + 33x^5 - 33x^4 + 14x^3 - 11x + 4
\end{aligned}$$

$$\begin{aligned}
& 4x^7 - 14x^5 - x^4 + 9x^3 - 2x^2 - 9x + 15 \\
& 2x^7 - 10x^6 + 22x^5 - 25x^4 + 12x^3 + 5x^2 - 6x - 3 \\
& 6x^7 + 2x^6 - 17x^5 - 8x^4 + 3x^3 - 8x^2 - 5x + 3 \\
& 2x^7 + 3x^6 + 4x^5 - 10x^4 + 11x^3 + 11x^2 - 18x + 3 \\
& 3x^7 - 9x^6 - 4x^5 - 5x^4 - 12x^3 + 14x^2 + 7x - 2 \\
& 15x^7 - 15x^6 + 2x^5 - 9x^4 + 5x^3 - 7x^2 + 7x - 3 \\
& 3x^7 + 3x^6 + 12x^5 + 2x^4 + 10x^3 + 7x + 3 \\
& 12x^7 - 31x^6 + 31x^5 - 31x^4 + 3x^3 - x^2 - 20x + 5 \\
& 8x^7 - 10x^6 - 2x^5 - 15x^4 - 4x^3 + 7x^2 + 13x + 15 \\
& 15x^7 + 31x^6 + 5x^5 - 26x^4 - 37x^3 - 20x^2 + 19x + 15 \\
& 20x^7 - 9x^6 - 30x^5 - 28x^4 + 21x^3 + 11x^2 + 7x + 2 \\
& 2x^7 - 9x^6 - 7x^5 + 12x^4 + 23x^3 + 41x^2 - 20
\end{aligned}$$

5. 특집: 백차식 3제

$$\begin{aligned} & x^{100} + 3x^{99} + x^{97} + 3x^{96} - 12x^{95} - 15x^{94} - 40x^{93} + 2x^{92} + 2x^{91} + 28x^{90} + 42x^{89} - 21x^{88} - 26x^{87} \\ & - 92x^{86} + 54x^{85} + 75x^{84} + 87x^{83} + 17x^{82} - 123x^{81} + 25x^{80} - 6x^{79} + 76x^{78} - 4x^{77} + 19x^{76} - 147x^{74} \\ & - 17x^{73} + 27x^{72} + 117x^{71} + 35x^{70} - 26x^{69} - 34x^{68} - 59x^{67} + 128x^{66} - 8x^{65} + 74x^{64} - 19x^{63} + 42x^{62} \\ & - 5x^{61} - 12x^{60} - 8x^{59} - 111x^{58} + 55x^{57} + 11x^{56} + 30x^{55} - 7x^{54} - 14x^{53} + 20x^{52} + 6x^{51} + 52x^{50} \\ & + 76x^{49} + 58x^{48} - 80x^{47} + 67x^{46} - 36x^{45} + 14x^{44} + 104x^{43} - 106x^{42} + 11x^{41} - 129x^{40} + 53x^{39} \\ & - 12x^{38} - 43x^{37} + 35x^{36} - 3x^{35} - 15x^{34} - 6x^{33} + 62x^{32} + 45x^{31} + 53x^{30} - 39x^{29} - 34x^{28} + 23x^{27} \\ & - 54x^{26} + 4x^{25} - 15x^{24} + 48x^{23} - 98x^{22} + 41x^{21} + 19x^{20} - 77x^{19} - 9x^{18} + 28x^{17} + 28x^{16} + 12x^{15} \\ & - 9x^{14} + 19x^{13} + 36x^{12} + 7x^{11} + x^{10} + 34x^9 - 30x^8 - 24x^7 - 31x^6 + 12x^5 + 4x^4 + 2x^3 - 3x^2 - x + 2 \\ & x^{100} + 4x^{99} - 2x^{98} - 7x^{97} - 21x^{96} - 8x^{95} + 22x^{93} + 9x^{92} - 40x^{91} - 44x^{90} + 10x^{89} + 4x^{88} - 45x^{87} \\ & - 49x^{86} - 2x^{85} + 52x^{84} - 73x^{83} - 4x^{82} - 20x^{81} - 41x^{80} - 59x^{79} - 25x^{78} - 42x^{77} - 10x^{76} - 44x^{75} \\ & + 64x^{74} - 19x^{73} - 65x^{72} - 39x^{71} + 83x^{70} + 47x^{69} + 16x^{68} - 46x^{67} + 58x^{66} - 56x^{65} - 42x^{64} - 39x^{63} \\ & - 58x^{62} - 88x^{61} - 15x^{60} - 6x^{59} - 96x^{58} + 11x^{57} + 32x^{56} - 18x^{55} - 2x^{54} - 21x^{53} - 34x^{52} + 19x^{51} \\ & - 33x^{50} - 19x^{49} - 86x^{48} - 83x^{47} - 42x^{46} - 107x^{45} + 92x^{44} - 32x^{43} - 102x^{42} + 94x^{41} - 60x^{40} + 68x^{39} \\ & - 77x^{38} + 12x^{37} - 107x^{36} + 57x^{35} - 45x^{34} - 27x^{33} + 17x^{32} + 149x^{31} - 127x^{30} + 32x^{29} - 60x^{28} + 19x^{27} \\ & + 7x^{26} + 30x^{25} + 2x^{24} - 91x^{23} + 8x^{22} - 121x^{21} + 29x^{20} + 52x^{19} - 36x^{18} + 8x^{17} + 18x^{16} - 38x^{15} - x^{14} \\ & + 7x^{13} + 46x^{12} - 13x^{11} - 41x^{10} - 2x^9 - 64x^8 + 30x^7 - 68x^6 + 26x^5 - 18x^4 - 7x^3 + 5x^2 + 8x + 20 \\ & x^{100} + 5x^{99} + 2x^{98} - 11x^{97} + 3x^{96} - 12x^{95} - 19x^{94} + 42x^{93} - 20x^{92} - 3x^{91} + 10x^{90} + 17x^{89} - 51x^{88} \\ & + 4x^{87} + 74x^{86} - 30x^{85} + 43x^{84} - 16x^{83} + 26x^{82} - 26x^{81} - 59x^{80} - 5x^{79} + 21x^{78} + 34x^{77} - 2x^{76} \\ & - 7x^{75} + 44x^{74} - 100x^{73} + 4x^{72} + 15x^{71} - 57x^{70} + 82x^{69} + 96x^{68} - 22x^{67} - 90x^{66} + 25x^{65} - 49x^{64} \\ & + 8x^{63} + 56x^{62} + 84x^{61} + 115x^{60} - 28x^{59} + 6x^{58} - 47x^{57} - 45x^{56} + 59x^{55} - 146x^{54} + 76x^{53} + 34x^{52} \\ & - 32x^{51} + 39x^{50} - 74x^{49} - 3x^{48} + 9x^{47} + 31x^{46} - 34x^{45} + 56x^{44} + 33x^{43} - 3x^{42} + 60x^{41} - 119x^{40} \\ & - 83x^{39} + 61x^{38} + 70x^{37} + 80x^{36} + 11x^{35} + 92x^{34} - 37x^{33} - 63x^{32} + 27x^{31} - 125x^{30} + 33x^{29} + 63x^{28} \\ & - 22x^{27} - 62x^{26} - 5x^{25} - 9x^{24} - x^{23} + 45x^{22} - 15x^{21} + 18x^{20} + 8x^{19} - 29x^{18} - 58x^{17} - 22x^{16} + 57x^{15} \\ & - 26x^{14} + 2x^{13} + 9x^{12} - 20x^{10} - 7x^9 - 34x^8 - 4x^7 + 7x^6 - 23x^5 + 7x^4 + 12x^3 + 15x^2 + 13x - 5 \end{aligned}$$

II

정답

6. 사차식의 인수분해

6.1 일계수 사차식

$(x^2 + 2x + 5)(x^2 + 4x - 4)$	$(x^2 - 3x - 3)(x^2 + 5x - 3)$	$(x^2 + 5x + 3)(x^2 - 3x - 3)$
$(x^2 - x + 1)(x^2 + 4x - 2)$	$(x^2 - 5x - 3)(x^2 - x - 3)$	$(x^2 - 2)(x^2 + 3x + 5)$
$(x^2 - 5x - 2)(x^2 - 4x + 1)$	$(x^2 + x + 3)(x^2 - x + 2)$	$(x^2 - 2x - 2)(x^2 + x + 4)$
$(x^2 - 4x - 1)(x^2 + x - 3)$	$(x^2 - 5x + 1)(x^2 + 2x + 3)$	$(x^2 + 3)(x^2 + 5x - 5)$
$(x^2 + x + 4)(x^2 + 4x + 2)$	$(x^2 - x - 1)(x^2 - 4x + 1)$	$(x^2 + x + 1)(x^2 + 2x - 2)$
$(x^2 - x - 5)(x^2 - 2x - 1)$	$(x^2 + 3x - 3)(x^2 + 5x - 1)$	$(x^2 + 5x - 3)(x^2 + 4x - 2)$
$(x^2 + 2x - 5)(x^2 - x + 3)$	$(x^2 - 4x + 5)(x^2 - 2x - 5)$	$(x^2 + x - 4)(x^2 + x - 4)$
$(x^2 + x - 1)(x^2 + 5x + 5)$	$(x^2 + 4)(x^2 - 5x + 3)$	$(x^2 - 5x + 1)(x^2 + 4x - 1)$
$(x^2 + 5x - 5)(x^2 + 2x + 4)$	$(x^2 + 5x + 2)(x^2 - x + 2)$	$(x^2 - x + 4)(x^2 + x + 3)$
$(x^2 - 4x + 2)(x^2 - 5)$	$(x^2 + 4x + 2)(x^2 + x - 1)$	$(x^2 + 4)(x^2 - 5x + 2)$
$(x^2 - 4x - 2)(x^2 - 5x - 3)$	$(x^2 + 3x + 4)(x^2 - 3x - 1)$	$(x^2 - x + 3)(x^2 + 4x - 3)$
$(x^2 - 3x - 2)(x^2 - 3x + 5)$	$(x^2 - 5x - 1)(x^2 + 3x - 2)$	$(x^2 - 3x + 3)(x^2 + 2x + 5)$
$(x^2 + 5x - 4)(x^2 - x + 1)$	$(x^2 + 4x - 1)(x^2 + x + 1)$	$(x^2 - 2x - 1)(x^2 - x + 1)$
$(x^2 - 3x - 2)(x^2 + 3x + 3)$	$(x^2 + 3x + 5)(x^2 - 3x + 4)$	$(x^2 + x - 3)(x^2 + 4)$
$(x^2 - 5)(x^2 - 5x + 3)$	$(x^2 - 5x - 4)(x^2 + 4x + 2)$	$(x^2 + 3x - 1)(x^2 + 4x + 5)$
$(x^2 + 5x - 3)(x^2 - 5x + 5)$	$(x^2 + 4x - 2)(x^2 - 5x - 4)$	$(x^2 + 2)(x^2 - 5x - 1)$
$(x^2 + x - 1)(x^2 - x + 4)$	$(x^2 + 4x - 3)(x^2 - 3x - 5)$	$(x^2 + 5x - 5)(x^2 + 2x + 3)$
$(x^2 + x + 3)(x^2 + 5x - 5)$	$(x^2 - 2x + 4)(x^2 - 5x - 2)$	$(x^2 + 2x + 2)(x^2 - 5x + 3)$
$(x^2 + 4x + 5)(x^2 + 3x + 3)$	$(x^2 + 4x - 2)(x^2 - x - 1)$	$(x^2 + 5x - 1)(x^2 + 4x - 3)$
$(x^2 - 5)(x^2 + 5)$	$(x^2 - 4x - 2)(x^2 - x + 4)$	$(x^2 + x - 1)(x^2 - 5x - 1)$
$(x^2 - 3)(x^2 - x + 4)$	$(x^2 - 2x - 2)(x^2 + 5x + 5)$	$(x^2 + 3x + 1)(x^2 + 5)$
$(x^2 + 3x - 1)(x^2 - 2x + 3)$	$(x^2 + 3x - 5)(x^2 + 3x - 3)$	$(x^2 + 5x - 2)(x^2 - 5x + 5)$
$(x^2 - 5x - 3)(x^2 - 3x + 4)$	$(x^2 - 2x - 2)(x^2 - x + 1)$	$(x^2 - 5x + 5)(x^2 + x + 3)$
$(x^2 - 3x + 5)(x^2 + x - 4)$	$(x^2 - x + 5)(x^2 + 2x - 1)$	$(x^2 + 2x + 5)(x^2 - x + 2)$
$(x^2 + 5x - 4)(x^2 + 4x - 4)$	$(x^2 + 5x + 5)(x^2 - 3x - 3)$	$(x^2 + x - 4)(x^2 - 2x - 4)$
$(x^2 + 1)(x^2 - 2x - 2)$	$(x^2 + 5x - 2)(x^2 - 2x - 4)$	$(x^2 - 5x - 4)(x^2 + 2x - 2)$
$(x^2 + x - 3)(x^2 - 5x + 5)$	$(x^2 - 4x + 5)(x^2 + 3x + 4)$	$(x^2 - 5x - 4)(x^2 - 4x - 2)$
$(x^2 + 3x + 5)(x^2 - x + 5)$	$(x^2 - 4x - 1)(x^2 - 2x - 5)$	$(x^2 + 2x - 5)(x^2 - 5x + 2)$
$(x^2 + x - 3)(x^2 - 2)$	$(x^2 - x - 4)(x^2 + 3x - 2)$	$(x^2 + 3x + 3)(x^2 - 5)$
$(x^2 - x + 3)(x^2 - 3x + 1)$	$(x^2 - x + 3)(x^2 - 5x - 5)$	$(x^2 + 2x + 4)(x^2 + x - 3)$
$(x^2 - 4x + 1)(x^2 + 5x + 1)$	$(x^2 + 4x - 3)(x^2 - 3x - 2)$	$(x^2 - 5x + 3)(x^2 - 3x - 1)$
$(x^2 - 3x - 2)(x^2 - 2x + 5)$	$(x^2 - 4x - 2)(x^2 - 5x + 3)$	$(x^2 + 5x + 2)(x^2 + 5)$
$(x^2 + 5x - 4)(x^2 + 2x - 2)$	$(x^2 + x + 3)(x^2 - 4x - 2)$	$(x^2 + 3x + 1)(x^2 + 5x - 1)$
$(x^2 - 5x + 5)(x^2 - 4x - 4)$	$(x^2 + 3x + 3)(x^2 - x + 4)$	$(x^2 - 3x - 5)(x^2 - 2x - 2)$

$$\begin{aligned}
&(x^2 - 5x - 5)(x^2 - 4x + 2) \\
&(x^2 + 3x - 3)(x^2 - 4x + 1) \\
&(x^2 - 3x - 2)(x^2 + 2x + 2) \\
&(x^2 + 5x + 1)(x^2 + 2x - 2) \\
&\quad (x^2 + 2)(x^2 - x - 1) \\
&(x^2 - x - 1)(x^2 + 3x - 2) \\
&(x^2 - 2x - 4)(x^2 + x + 4) \\
&(x^2 + 3x - 3)(x^2 - 3x + 3) \\
&(x^2 + 2x - 2)(x^2 - 2x - 4) \\
&\quad (x^2 - 2)(x^2 - 4x + 1) \\
&\quad (x^2 - 3)(x^2 + 5x - 4) \\
&(x^2 - 3x + 5)(x^2 - 3x + 3) \\
&\quad (x^2 + x + 5)(x^2 + x + 4) \\
&\quad (x^2 + x + 2)(x^2 - 5x - 1) \\
&(x^2 - 4x - 1)(x^2 - 5x - 5) \\
&(x^2 - 2x - 1)(x^2 - 3x + 5) \\
&\quad (x^2 - x - 3)(x^2 - 3) \\
&(x^2 + 2x - 1)(x^2 - 5x + 1) \\
&\quad (x^2 - 5x - 4)(x^2 - x - 5) \\
&(x^2 + 2x - 4)(x^2 + 4x - 1) \\
&\quad (x^2 + 5)(x^2 - 2x + 5) \\
&\quad (x^2 + x + 3)(x^2 - x + 5) \\
&(x^2 + 2x + 5)(x^2 - x - 1) \\
&\quad (x^2 - x + 5)(x^2 + 4x - 2) \\
&(x^2 + 5x + 5)(x^2 + 3x - 1) \\
&\quad (x^2 + 2x + 2)(x^2 + x + 1)
\end{aligned}$$

$$\begin{aligned}
&(x^2 - 2x - 2)(x^2 + 2x + 2) \\
&(x^2 + 4x - 4)(x^2 + 2x - 4) \\
&\quad (x^2 + 2x - 1)(x^2 + 3) \\
&\quad (x^2 + x - 3)(x^2 + x + 3) \\
&(x^2 - 2x + 4)(x^2 - 5x - 4) \\
&\quad (x^2 + 5x - 4)(x^2 + x - 4) \\
&\quad (x^2 + 1)(x^2 - x - 4) \\
&\quad (x^2 + 5x - 1)(x^2 + x + 3) \\
&\quad (x^2 + 5x - 5)(x^2 - x + 1) \\
&\quad (x^2 + 5)(x^2 - 2x - 5) \\
&(x^2 + 5x - 3)(x^2 - 4x - 3) \\
&(x^2 - 5x - 2)(x^2 + 4x + 1) \\
&(x^2 + 4x + 2)(x^2 - 4x - 1) \\
&\quad (x^2 + 5x - 2)(x^2 - x + 2) \\
&(x^2 - 3x + 3)(x^2 + 5x + 2) \\
&\quad (x^2 - x + 2)(x^2 - 3x - 2) \\
&(x^2 + 3x - 5)(x^2 + 4x + 1) \\
&(x^2 + 5x - 1)(x^2 - 3x + 3) \\
&\quad (x^2 - 5)(x^2 + 4x - 1) \\
&\quad (x^2 - 3x - 5)(x^2 - x - 1) \\
&(x^2 + 5x - 1)(x^2 - 5x - 1) \\
&(x^2 + 5x - 2)(x^2 + 4x - 2) \\
&\quad (x^2 + 5x - 3)(x^2 + x + 4) \\
&\quad (x^2 - x + 1)(x^2 - 5x - 3) \\
&(x^2 - 2x + 2)(x^2 - 3x - 3) \\
&\quad (x^2 - 4x + 1)(x^2 + x + 4)
\end{aligned}$$

$$\begin{aligned}
&(x^2 - 4x + 1)(x^2 + x - 3) \\
&(x^2 - 3x + 5)(x^2 - x + 5) \\
&\quad (x^2 - x + 5)(x^2 - x - 4) \\
&(x^2 - 4x + 5)(x^2 + 2x - 4) \\
&\quad (x^2 + 4x - 4)(x^2 - x + 4) \\
&\quad (x^2 + 2)(x^2 - 5x + 3) \\
&\quad (x^2 - 3x - 2)(x^2 - 3) \\
&(x^2 - 2x - 2)(x^2 - 2x + 4) \\
&\quad (x^2 - x + 4)(x^2 + 3x - 1) \\
&(x^2 - 4x - 2)(x^2 - 4x - 3) \\
&\quad (x^2 + 3x + 5)(x^2 + 5) \\
&(x^2 + 5x - 2)(x^2 - 4x - 1) \\
&(x^2 + 5x + 3)(x^2 + 5x - 3) \\
&(x^2 + 4x - 4)(x^2 - 3x + 4) \\
&(x^2 + 4x - 1)(x^2 - 5x - 2) \\
&(x^2 - 5x - 4)(x^2 + 5x - 5) \\
&\quad (x^2 - 5x - 4)(x^2 + 2) \\
&(x^2 - 4x - 1)(x^2 + 3x - 2) \\
&(x^2 - 2x + 3)(x^2 + 4x - 2) \\
&(x^2 + 2x - 2)(x^2 - 4x - 4) \\
&(x^2 - 5x - 2)(x^2 - 5x - 2) \\
&(x^2 - 5x - 2)(x^2 - 2x - 1) \\
&(x^2 + 4x - 3)(x^2 + 4x + 2) \\
&\quad (x^2 - x + 3)(x^2 + 4) \\
&\quad (x^2 + x - 5)(x^2 + 2x + 4) \\
&(x^2 + 2x + 4)(x^2 - 3x - 1)
\end{aligned}$$

6.2 일계수가 아닌 사차식

$$\begin{aligned}
&(5x^2 - 4x + 2)(2x^2 - x + 2) \\
&(4x^2 + 4x + 5)(5x^2 + 4x - 3) \\
&\quad (x^2 - 2)(3x^2 + x - 1) \\
&(2x^2 + 4x - 3)(4x^2 + x - 4) \\
&(5x^2 + 2x + 2)(2x^2 + 2x + 1) \\
&(3x^2 + 3x - 5)(3x^2 - 2x - 4) \\
&\quad (x^2 + 3x + 1)(5x^2 + 4x + 2) \\
&(5x^2 + 3x + 5)(2x^2 - 2x + 3) \\
&\quad (3x^2 + 4)(2x^2 + x - 2) \\
&(5x^2 + 4x - 4)(3x^2 + 5x - 3) \\
&\quad (5x^2 + 5x + 2)(4x^2 - 3) \\
&\quad (2x^2 + x - 5)(4x^2 - x + 4) \\
&(5x^2 + 5x + 1)(2x^2 - 2x + 1) \\
&\quad (3x^2 + x + 4)(3x^2 - x + 1) \\
&(3x^2 + 3x - 4)(3x^2 - 5x - 4) \\
&(2x^2 + 4x - 3)(5x^2 + 5x - 3) \\
&\quad (4x^2 - x - 2)(4x^2 + 3x + 5) \\
&\quad (4x^2 - 3)(3x^2 - 3x - 1)
\end{aligned}$$

$$\begin{aligned}
&(2x^2 - 5x - 2)(2x^2 + 3x + 3) \\
&(2x^2 + 3x + 3)(4x^2 + 3x + 4) \\
&(2x^2 + 2x - 1)(3x^2 + 2x - 4) \\
&\quad (2x^2 - x - 4)(4x^2 + x - 1) \\
&\quad (x^2 + 3)(2x^2 + 2x + 3) \\
&(3x^2 - x + 4)(5x^2 + 5x + 3) \\
&(5x^2 - 3x - 3)(4x^2 - 4x - 1) \\
&\quad (5x^2 - 2x - 4)(2x^2 + 5) \\
&\quad (5x^2 + 2x - 4)(2x^2 - 1) \\
&\quad (3x^2 - 2x - 3)(x^2 + 3) \\
&(5x^2 - 5x + 4)(3x^2 + 5x + 4) \\
&\quad (2x^2 - 3)(x^2 - 2x - 4) \\
&(x^2 - 3x - 1)(5x^2 + 3x + 1) \\
&\quad (5x^2 + 2x + 5)(x^2 - x - 5) \\
&\quad (5x^2 - x + 1)(x^2 + 4x - 4) \\
&(5x^2 + 3x + 3)(4x^2 + 3x + 5) \\
&\quad (2x^2 + 2x - 1)(x^2 + 3x + 5) \\
&(5x^2 - x + 4)(4x^2 - 3x + 2)
\end{aligned}$$

$$\begin{aligned}
&(2x^2 - x + 3)(2x^2 + x + 5) \\
&\quad (x^2 + 3x - 3)(5x^2 + x + 1) \\
&(5x^2 - 5x + 1)(2x^2 + x - 2) \\
&(5x^2 + x - 3)(2x^2 + 3x - 4) \\
&(2x^2 - x + 4)(2x^2 - 5x - 2) \\
&(3x^2 - 3x + 5)(3x^2 - 2x + 5) \\
&(5x^2 + 3x + 4)(5x^2 - 3x + 5) \\
&\quad (2x^2 + 5x + 1)(5x^2 + x + 2) \\
&\quad (4x^2 - 3)(4x^2 + 2x + 1) \\
&(3x^2 - 4x - 5)(4x^2 - 5x + 3) \\
&(2x^2 + x + 4)(2x^2 + 5x + 5) \\
&(3x^2 - 5x + 1)(x^2 - 3x + 5) \\
&(x^2 - 2x + 3)(3x^2 + 2x + 1) \\
&\quad (4x^2 + 5)(x^2 - 2x - 1) \\
&\quad (3x^2 - 3x + 1)(4x^2 - 3) \\
&\quad (3x^2 - 5x + 5)(2x^2 - 5) \\
&(5x^2 - x + 5)(5x^2 - 5x - 3) \\
&(4x^2 - 5x - 2)(x^2 + 4x + 5)
\end{aligned}$$

$$\begin{aligned}
& (5x^2 + 3x + 5)(3x^2 - 2) & (4x^2 - x + 1)(5x^2 - 5x - 4) & (5x^2 - 5x + 3)(4x^2 - 3x + 4) \\
& (5x^2 + 2x + 4)(3x^2 - 4x + 2) & (5x^2 + 2x + 5)(5x^2 + 2x + 1) & (2x^2 - 2x + 1)(2x^2 - x + 4) \\
& (3x^2 + 2x + 5)(4x^2 + 5x - 2) & (5x^2 - 5x + 2)(4x^2 + 5x - 5) & (5x^2 + 4)(2x^2 + 4x + 1) \\
& (x^2 + 3x + 5)(3x^2 - x - 5) & (4x^2 + 4x + 5)(x^2 + 4x - 1) & (5x^2 + 5x - 2)(4x^2 - 5x - 2) \\
& (4x^2 + 2x + 3)(5x^2 - x + 1) & (3x^2 + 3x - 5)(x^2 - 4x + 1) & (x^2 - 2x + 3)(5x^2 - 5x + 4) \\
& (5x^2 - x + 3)(4x^2 - x + 1) & (3x^2 + 2x + 5)(5x^2 - 5x - 3) & (2x^2 - 5x - 2)(4x^2 - 4x - 5) \\
& (3x^2 - x - 3)(5x^2 + x + 5) & (4x^2 - 3x - 2)(4x^2 - 5x - 4) & (5x^2 - 3x + 4)(3x^2 + 5x - 1) \\
& (3x^2 + 5)(3x^2 - 4x + 2) & (5x^2 - 3x - 5)(4x^2 + 2x + 5) & (2x^2 - 5x + 5)(5x^2 - x - 1) \\
& (3x^2 - x + 2)(3x^2 - 1) & (x^2 + x + 2)(4x^2 - x + 5) & (x^2 + 5x - 2)(4x^2 + 3x - 3) \\
& (x^2 - x - 1)(5x^2 - 4x - 3) & (5x^2 + 2x - 4)(x^2 + 2) & (5x^2 + x - 1)(3x^2 - 2x + 1) \\
& (4x^2 - x + 2)(4x^2 - 3x + 1) & (5x^2 - 2x + 2)(3x^2 + 2x - 2) & (4x^2 + 2x + 5)(x^2 - x + 2) \\
& (x^2 - 3x - 1)(5x^2 - 4x + 3) & (4x^2 - x + 1)(5x^2 - 2) & (3x^2 + 2)(4x^2 - 2x + 3) \\
& (2x^2 + x + 4)(3x^2 - 5) & (3x^2 - x - 3)(3x^2 + 5x + 5) & (5x^2 - 5x + 1)(x^2 + 4x - 4) \\
& (x^2 + 3x + 3)(2x^2 + x - 4) & (x^2 + 3x + 4)(2x^2 + 3x + 5) & (2x^2 + x + 3)(5x^2 + 3x + 3) \\
& (5x^2 + 4x + 4)(3x^2 + 4x + 4) & (4x^2 + 4x + 3)(4x^2 - 5x - 4) & (x^2 + 4x - 1)(2x^2 + 5x - 5) \\
& (x^2 + 4x + 1)(4x^2 + x - 2) & (5x^2 - x + 4)(x^2 + 2x + 2) & (5x^2 - 3x + 5)(5x^2 - 2x - 2) \\
& (3x^2 - 2x - 4)(5x^2 - x + 4) & (4x^2 + 5x - 4)(5x^2 + 5x + 2) & (3x^2 - 5x + 3)(3x^2 + x + 1) \\
& (x^2 - 5x + 2)(3x^2 + 5x + 3) & (5x^2 + x - 3)(2x^2 + 4x + 3) & (x^2 + 2x - 5)(3x^2 + 3x - 5) \\
& (5x^2 - x - 1)(x^2 + 5) & (4x^2 + 2x - 1)(4x^2 + 4x - 5) & (x^2 + 3x + 3)(3x^2 - 3x + 1) \\
& (3x^2 - 4x + 5)(3x^2 - 4x - 1) & (3x^2 - 2x + 2)(5x^2 - x - 1) & (x^2 + 4x - 2)(3x^2 - 3x + 1) \\
& (4x^2 + 3x + 5)(2x^2 + 2x - 3) & (3x^2 - 1)(3x^2 + 2x + 4) & (2x^2 - x - 4)(3x^2 - 4x + 5) \\
& (3x^2 + 3x + 4)(4x^2 + 4x + 5) & (4x^2 + x + 1)(4x^2 + 5x + 4) & (3x^2 - 5x + 3)(x^2 + 2x - 2) \\
& (5x^2 + 3x - 5)(2x^2 - 4x - 3) & (x^2 - x + 2)(2x^2 - 2x + 3) & (2x^2 + 4x + 3)(x^2 - 3x - 2) \\
& (3x^2 + 3x - 4)(4x^2 + 2x - 1) & (x^2 + x + 2)(5x^2 - 2x + 2) & (x^2 + 1)(4x^2 - 2x + 1) \\
& (5x^2 - 4x + 1)(4x^2 - 2x - 5) & (3x^2 - 4x - 2)(5x^2 - 2x + 2) & (5x^2 + x - 3)(4x^2 - 3x + 2) \\
& (4x^2 - 3)(4x^2 + 5x - 5) & (3x^2 - 5x - 3)(3x^2 + 5x + 1) & (3x^2 + 5x + 4)(4x^2 - 2x + 3) \\
& (5x^2 + 5x - 4)(5x^2 - 1) & (3x^2 + 5x + 3)(3x^2 + x + 3) & (x^2 - 2x + 2)(5x^2 - 5x - 1) \\
& (4x^2 + 3x + 3)(3x^2 - 2x + 1) & (4x^2 + x + 5)(x^2 + 4x - 2) & (4x^2 - 5x - 3)(x^2 + 5x + 2) \\
& (5x^2 - x + 4)(x^2 - 2x + 5) & (5x^2 - x + 5)(5x^2 + 5x - 3) & (3x^2 + x + 1)(5x^2 - 3x + 2) \\
& (5x^2 + 4x - 3)(x^2 - 3x + 5) & (3x^2 - 5x - 4)(4x^2 + 2x + 1) & (5x^2 - 4x + 3)(x^2 - x + 1) \\
& (4x^2 - 2x - 1)(3x^2 - x + 5) & (3x^2 + 2x - 3)(5x^2 - 3x + 1) & (2x^2 + 2x - 1)(x^2 + 5x - 5) \\
& (5x^2 - x + 3)(x^2 - 3) & (4x^2 - 2x - 3)(5x^2 - 5x + 1) & (2x^2 + 2x + 3)(2x^2 - 3x + 3) \\
& (2x^2 + 4x + 1)(2x^2 - 2x - 5) & (x^2 - 5x + 2)(4x^2 + 3x - 5) & (2x^2 + 2x + 5)(2x^2 + 1) \\
& (3x^2 - 3x - 4)(2x^2 - 5x - 1) & (4x^2 - 4x - 5)(3x^2 - 5x - 4) & (5x^2 - x + 4)(2x^2 + 3x + 4) \\
& (2x^2 - 3x - 3)(5x^2 - x + 4) & (x^2 + 2x + 2)(3x^2 + 3x - 5) & (3x^2 + x - 3)(2x^2 - 2x - 5) \\
& (3x^2 - 5x - 3)(x^2 + 5x + 2) & (x^2 - x + 2)(5x^2 - 4x + 4) & (5x^2 + 2x + 4)(2x^2 + 3x + 3) \\
& (2x^2 - 3)(2x^2 - 4x - 3) & (4x^2 - x - 1)(x^2 + x - 5) & (2x^2 - 5x - 5)(5x^2 + 4x + 5) \\
& (x^2 - 3)(3x^2 - 5) & (5x^2 + 2x - 1)(3x^2 + 3x - 5) & (5x^2 + 4x - 3)(3x^2 + 5x + 3) \\
& (4x^2 - 2x + 5)(5x^2 + 5x - 1) & (x^2 - 5x - 2)(3x^2 + 2x + 4) & (2x^2 - x - 2)(3x^2 - 5x - 1) \\
& (x^2 - x + 4)(2x^2 - 5x - 1) & (4x^2 + 3x - 3)(4x^2 + x - 4) & (3x^2 + x + 2)(4x^2 + 5x - 4) \\
& (5x^2 + 2x - 5)(2x^2 + 5) & (4x^2 + 2x - 3)(4x^2 - 5x - 2) & (3x^2 - 1)(5x^2 - x + 5) \\
& (4x^2 + 5x - 4)(5x^2 + 4x - 2) & (x^2 - x + 3)(5x^2 + x - 1) & (3x^2 - 3x + 2)(5x^2 + 3x - 5)
\end{aligned}$$

7. 오차식의 인수분해

7.1 일계수 오차식

$$\begin{aligned}(x^2+5x-2)(x^3+2x^2+5x-3) \\ (x^2+4x-3)(x^3+x^2+4x-3) \\ (x^2-x+5)(x^3-x^2+2x-5) \\ (x^2+2x-4)(x^3+5x^2+3x-5) \\ (x^2+3x+4)(x^3-5x^2-2x-4) \\ (x^2-x-5)(x^3-4x^2+3x+4) \\ (x^2-x+5)(x^3-3x^2+3x+4) \\ (x^2+x-1)(x^3+x^2-x-5) \\ (x^2-3x+1)(x^3+5x^2-3) \\ (x^2+x+2)(x^3+3x^2-4x-4) \\ (x^2+2x-4)(x^3-2x^2-3x+5) \\ (x^2+3x-3)(x^3-x^2-2x+4) \\ (x^2-2x-2)(x^3+4x^2-x-2) \\ (x^2+5x-5)(x^3-4x^2+1) \\ (x^2-5x-2)(x^3+2x^2+x-5) \\ (x^2-5x-4)(x^3-4x^2-2x+2) \\ (x^2+5)(x^3-5x^2+x-3) \\ (x^2-x-3)(x^3+2x^2+2x-1) \\ (x^2-2x-1)(x^3+3x^2+5x-4) \\ (x^2-5)(x^3-3x^2-3x-2) \\ (x^2+3x-5)(x^3+3x^2+5x-4) \\ (x^2-2x-5)(x^3+x^2+3x+1) \\ (x^2+5x+5)(x^3+2x^2+5x+2) \\ (x^2+2x-2)(x^3+x-3) \\ (x^2-x+1)(x^3+5x^2-x+3) \\ (x^2+x-1)(x^3+2x^2-3x-2) \\ (x^2-4x+1)(x^3+2x^2-x+2) \\ (x^2-3x-5)(x^3-4x^2-2) \\ (x^2-3x+4)(x^3-4x^2-3x+4) \\ (x^2-x+2)(x^3-x^2-5) \\ (x^2+4x-4)(x^3+4x^2-x+2) \\ (x^2-2)(x^3-4x^2+2x-1) \\ (x^2+4x-4)(x^3+3x-5) \\ (x^2+2x-2)(x^3-x^2-2x+5)\end{aligned}$$

$$\begin{aligned}(x^2-3x+3)(x^3-3x^2+3) \\ (x^2-x-3)(x^3-3x^2+x-2) \\ (x^2-5x+1)(x^3+4x^2-x+4) \\ (x^2-5x+2)(x^3-2x^2-5x+4) \\ (x^2+x+5)(x^3-2x^2+2x-3) \\ (x^2+4x-1)(x^3-4x^2+3x-3) \\ (x^2+2x-4)(x^3+3x^2-5x+2) \\ (x^2+4x+1)(x^3+2x^2-2x+5) \\ (x^2+2x+5)(x^3+4x^2-4x+2) \\ (x^2-2x+3)(x^3-2x+3) \\ (x^2+3x-3)(x^3+2x^2+5x+5) \\ (x^2+x-4)(x^3+x^2-3x+4) \\ (x^2-5x+3)(x^3+4x^2+4x+2) \\ (x^2+3x+5)(x^3+2x^2+x+1) \\ (x^2-x-5)(x^3-2x^2-x-5) \\ (x^2+3x-3)(x^3-x^2-x+4) \\ (x^2+3x-3)(x^3-4x^2+3x+5) \\ (x^2+3)(x^3-x^2+x-2) \\ (x^2+5x-2)(x^3+x^2-4x+1) \\ (x^2+3x+1)(x^3+3x^2-4x-5) \\ (x^2+5x-2)(x^3-2x^2-2x+5) \\ (x^2-x-1)(x^3-2x^2-3x+3) \\ (x^2+x+1)(x^3-5x^2-x-2) \\ (x^2-3x-5)(x^3+5x^2-5x-5) \\ (x^2+3x+5)(x^3-3x^2+x-4) \\ (x^2-5x-5)(x^3+x+3) \\ (x^2+5x+2)(x^3-4x^2+5x+5) \\ (x^2-5x-1)(x^3-x^2+5x+5) \\ (x^2+5x-5)(x^3+2x^2-4x-4) \\ (x^2-5x-1)(x^3+2x^2+x-1) \\ (x^2-2x-5)(x^3+x^2-4x+4) \\ (x^2-3x-3)(x^3-4x^2-4) \\ (x^2+5x-1)(x^3-2x^2-3x-3) \\ (x^2+4x-1)(x^3+5x^2-5x-3)\end{aligned}$$

$$\begin{aligned}(x^2-2x+5)(x^3+x+3) \\ (x^2-x+5)(x^3-5x^2+x-2) \\ (x^2-2x+4)(x^3+x-4) \\ (x^2+2x+5)(x^3+5x^2-5) \\ (x^2-4x-1)(x^3-4x-5) \\ (x^2+5x-1)(x^3-4x-1) \\ (x^2+x-3)(x^3-3x^2+3x+1) \\ (x^2-2x-2)(x^3+5x^2+4x-5) \\ (x^2-5x-2)(x^3+3x^2-1) \\ (x^2-5x+3)(x^3+4x^2+5x-2) \\ (x^2-3x+1)(x^3+4x^2+1) \\ (x^2+5)(x^3+3x^2-3x+1) \\ (x^2+2x-1)(x^3-x^2-x+2) \\ (x^2-4x-3)(x^3+2x^2-4) \\ (x^2+4x-2)(x^3-3x^2-2x-4) \\ (x^2+2x+5)(x^3+5x-2) \\ (x^2-3x+5)(x^3-x^2+2x+2) \\ (x^2-x+4)(x^3-2x^2+4x-5) \\ (x^2-3x-3)(x^3-3x^2-5x+3) \\ (x^2-5x+1)(x^3-4x^2+4x-5) \\ (x^2+4)(x^3+x^2-3x-1) \\ (x^2-2)(x^3+4x^2+4) \\ (x^2+2x+3)(x^3+2x^2-x+4) \\ (x^2+3x+3)(x^3+2x^2-4) \\ (x^2-4x-1)(x^3-5x^2-1) \\ (x^2-2x-4)(x^3-5x^2-5x-2) \\ (x^2+3)(x^3+4x+3) \\ (x^2+5x+5)(x^3+3x^2-3) \\ (x^2-5x-4)(x^3-5x^2+x-4) \\ (x^2+5x+5)(x^3+x^2+5x+1) \\ (x^2+2x-2)(x^3+2x^2+5x-5) \\ (x^2-5x-2)(x^3+x^2-4x-1) \\ (x^2+x+1)(x^3-4x^2+4) \\ (x^2-3x+3)(x^3-2x^2+x+5)\end{aligned}$$

$$\begin{aligned}
&(x^2 + 2x + 2)(x^3 + 5x^2 - 3x + 1) \\
&\quad (x^2 - 4x + 1)(x^3 - 4) \\
&\quad (x^2 + x - 5)(x^3 - x^2 + x + 2) \\
&(x^2 + 4x + 2)(x^3 + 3x^2 + 5x + 2) \\
&\quad (x^2 - x - 1)(x^3 + 4x^2 + x + 1) \\
&\quad (x^2 - x + 1)(x^3 + x^2 - 4x + 5) \\
&\quad (x^2 + 5x - 4)(x^3 - x + 5) \\
&(x^2 + 4x - 1)(x^3 + 2x^2 + 3x + 1) \\
&\quad (x^2 + 2x + 3)(x^3 - 2x^2 + x - 5) \\
&(x^2 - 4x - 2)(x^3 - 4x^2 + 5x - 5) \\
&\quad (x^2 + 2x + 3)(x^3 - x^2 - 5x + 1) \\
&\quad (x^2 + 5)(x^3 - 4x^2 - 2x - 5) \\
&(x^2 - 4x + 2)(x^3 - 3x^2 - 3x - 5) \\
&(x^2 - 4x - 4)(x^3 - 5x^2 + 5x + 5) \\
&\quad (x^2 + x + 4)(x^3 - 4x + 2) \\
&\quad (x^2 + 3x - 3)(x^3 - 2x - 5) \\
&\quad (x^2 - 4x + 5)(x^3 + 2x^2 + 5) \\
&(x^2 + 5x + 1)(x^3 - 5x^2 - x - 4) \\
&(x^2 + x - 4)(x^3 - 2x^2 - 4x - 4) \\
&\quad (x^2 - 2)(x^3 - 3x^2 - 3x - 1) \\
&\quad (x^2 - 2x + 2)(x^3 + 4x^2 + 1) \\
&(x^2 + 3x - 1)(x^3 + 3x^2 - 5x + 4) \\
&(x^2 + 2x + 2)(x^3 + 5x^2 + 4x + 5) \\
&\quad (x^2 + 3)(x^3 + 2x^2 + 2x + 3) \\
&\quad (x^2 - 5x + 1)(x^3 + x^2 + 4x + 5) \\
&\quad (x^2 + 3x - 5)(x^3 - x^2 - 4x - 5)
\end{aligned}$$

$$\begin{aligned}
&(x^2 + x - 3)(x^3 + 3x^2 - 5x + 3) \\
&\quad (x^2 - x + 2)(x^3 + 5x^2 + 2x + 1) \\
&\quad (x^2 - x + 1)(x^3 - 4x^2 + 2x + 5) \\
&\quad (x^2 + 2)(x^3 + x^2 + x - 5) \\
&\quad (x^2 - 5x + 1)(x^3 + x^2 - 3x - 5) \\
&(x^2 + 5x - 2)(x^3 + 3x^2 - 4x - 3) \\
&\quad (x^2 - 2x - 4)(x^3 + 5x + 2) \\
&\quad (x^2 - 3x - 3)(x^3 - 4x^2 + x - 3) \\
&\quad (x^2 + 3x + 5)(x^3 - 4x^2 - 4) \\
&(x^2 + 5x - 2)(x^3 - 2x^2 + 4x - 2) \\
&\quad (x^2 - 5)(x^3 - 4x^2 - 4x - 4) \\
&\quad (x^2 - x + 5)(x^3 + 4x + 4) \\
&\quad (x^2 + 3x - 3)(x^3 + x^2 - 5x + 4) \\
&(x^2 - 2x - 4)(x^3 + 5x^2 + 4x + 1) \\
&\quad (x^2 - 3x + 1)(x^3 + 5x^2 + x - 5) \\
&\quad (x^2 + x + 4)(x^3 + x^2 + 4x - 1) \\
&\quad (x^2 + 3x + 1)(x^3 - 2x^2 + 4) \\
&\quad (x^2 - x + 1)(x^3 + 5x^2 + 2x - 3) \\
&\quad (x^2 + 2x + 5)(x^3 - x^2 + 5x + 5) \\
&(x^2 - 4x - 4)(x^3 - 5x^2 + 4x + 3) \\
&(x^2 + 3x + 4)(x^3 + 4x^2 + 3x - 4) \\
&\quad (x^2 + x - 5)(x^3 + 2x^2 - 5x - 1) \\
&\quad (x^2 + x - 4)(x^3 + 5x^2 - 1) \\
&\quad (x^2 - x - 1)(x^3 + 5x^2 - 5x - 3) \\
&(x^2 + 3x + 1)(x^3 - 5x^2 + 3x + 2) \\
&\quad (x^2 - x + 1)(x^3 + 2x^2 - 3x + 5)
\end{aligned}$$

$$\begin{aligned}
&(x^2 - 4x + 5)(x^3 + 2x^2 - 3x - 3) \\
&\quad (x^2 + 3x - 2)(x^3 - 5x^2 + x + 2) \\
&\quad (x^2 + 3)(x^3 - 5x^2 - 2x - 4) \\
&\quad (x^2 - 3x - 3)(x^3 - 2x^2 - 2) \\
&\quad (x^2 - 4x + 1)(x^3 - x^2 + x - 5) \\
&\quad (x^2 + x + 1)(x^3 + 3x^2 + 2x + 5) \\
&(x^2 + 4x + 2)(x^3 - 2x^2 + 5x + 2) \\
&\quad (x^2 + 3x - 3)(x^3 + 2x - 5) \\
&\quad (x^2 + x - 4)(x^3 - x^2 + 4x - 5) \\
&\quad (x^2 + 3x - 5)(x^3 - 5x^2 - x - 1) \\
&(x^2 - 4x - 1)(x^3 - 5x^2 + 2x - 5) \\
&\quad (x^2 + 2x - 2)(x^3 - 5x^2 + x + 4) \\
&\quad (x^2 + 3)(x^3 - x^2 - x - 3) \\
&(x^2 - 4x - 2)(x^3 + 3x^2 - 3x + 5) \\
&\quad (x^2 + x + 5)(x^3 - 2x^2 - 3x - 2) \\
&\quad (x^2 - 5x + 5)(x^3 + 4x - 3) \\
&(x^2 + 4x - 4)(x^3 + 4x^2 + 5x - 1) \\
&(x^2 - 5x - 3)(x^3 - 3x^2 + 5x - 5) \\
&\quad (x^2 - x + 1)(x^3 + 3x^2 - 5x - 1) \\
&\quad (x^2 - 5x + 1)(x^3 - 5x^2 - x - 2) \\
&\quad (x^2 - 5)(x^3 + x^2 + 3x + 5) \\
&(x^2 - 4x - 4)(x^3 - 5x^2 + 2x + 5) \\
&\quad (x^2 - x - 4)(x^3 - x^2 + x + 2) \\
&(x^2 + 4x + 5)(x^3 + 5x^2 + 5x + 2) \\
&\quad (x^2 - x + 1)(x^3 + 2x^2 - 4x + 5) \\
&\quad (x^2 - 3x + 3)(x^3 - x^2 + 3x - 2)
\end{aligned}$$

7.2 일계수가 아닌 오차식

$$\begin{aligned}
&(2x^2 - x + 1)(4x^3 - 2x^2 + 5x + 4) \\
&\quad (x^2 + 3x - 5)(4x^3 + 5x^2 - 5x - 2) \\
&\quad (2x^2 + 3)(4x^3 - 2x^2 - 4x + 5) \\
&\quad (5x^2 + 5x - 4)(x^3 - 5x^2 - 5x - 4) \\
&\quad (x^2 - x + 3)(2x^3 + 2x^2 - 2x + 5) \\
&(5x^2 + 4x - 3)(3x^3 - 4x^2 + 5x + 1) \\
&\quad (5x^2 + 3)(x^3 - 5x + 5) \\
&\quad (2x^2 + 5x - 2)(x^3 - 4x^2 - x + 3) \\
&\quad (3x^2 - 5x - 3)(3x^3 - 4x^2 + 3) \\
&\quad (3x^2 - 4x - 1)(x^3 + x^2 + 5x + 3) \\
&(5x^2 + 2x - 1)(4x^3 - 2x^2 + 5x - 1) \\
&\quad (5x^2 - 4x + 2)(4x^3 - 2x - 1) \\
&\quad (x^2 - 3x + 3)(4x^3 - 2x^2 - x - 3) \\
&\quad (4x^2 + 5x - 1)(x^3 - 2x^2 + 5x + 1) \\
&\quad (x^2 + 3x - 2)(5x^3 + x^2 + 1) \\
&\quad (x^2 + x - 1)(2x^3 + x^2 + 4x - 5) \\
&\quad (5x^2 - 3x + 4)(2x^3 + 2x - 3) \\
&\quad (4x^2 - 5x - 4)(x^3 + 4x^2 - x + 2)
\end{aligned}$$

$$\begin{aligned}
&(5x^2 - 3x - 3)(5x^3 + x^2 - x - 4) \\
&\quad (4x^2 - 3x + 1)(5x^3 + 2x^2 - x - 2) \\
&\quad (x^2 + 2x - 2)(4x^3 + x^2 + 3x + 5) \\
&\quad (4x^2 + 3x + 4)(5x^3 - 3x^2 + 4x + 3) \\
&\quad (5x^2 + 5x - 4)(4x^3 - 5x^2 - 4x + 1) \\
&\quad (3x^2 - 4x + 2)(3x^3 + 2x^2 + 2x + 5) \\
&\quad (5x^2 + 4x + 5)(4x^3 + x^2 + 4x + 2) \\
&\quad (x^2 + 2x - 4)(4x^3 + 3x^2 - 3x + 3) \\
&\quad (5x^2 - x + 5)(5x^3 - 2x^2 + 3x + 2) \\
&\quad (5x^2 + x - 3)(x^3 - 2x^2 + 3x + 5) \\
&\quad (3x^2 - 3x + 1)(2x^3 + 5x^2 + 3) \\
&\quad (x^2 - 5x - 3)(2x^3 - 4x^2 - 1) \\
&\quad (2x^2 - 2x - 1)(5x^3 + 5x^2 - 5x + 1) \\
&\quad (x^2 + x - 3)(3x^3 + 2x^2 - 1) \\
&\quad (2x^2 - 2x + 5)(x^3 + x^2 + 3x + 1) \\
&\quad (3x^2 + 4x - 2)(2x^3 + 5x^2 - 5x + 4) \\
&\quad (4x^2 - 5x - 3)(5x^3 - 5x^2 - x + 5) \\
&\quad (x^2 - 4x - 2)(5x^3 + 5x - 3)
\end{aligned}$$

$$\begin{aligned}
&(2x^2 - 2x - 5)(3x^3 + 3x^2 - 3x - 4) \\
&\quad (4x^2 - x + 3)(3x^3 - 3x^2 + 3x + 2) \\
&\quad (3x^2 - 2x + 5)(3x^3 - 5x^2 + 3x - 4) \\
&\quad (3x^2 - 4x + 2)(x^3 + 3x^2 + 2x + 3) \\
&\quad (3x^2 - 3x + 2)(2x^3 + 5x^2 - 3x - 5) \\
&\quad (x^2 + x + 4)(3x^3 - 2x^2 + 4x - 2) \\
&\quad (5x^2 - 3x - 3)(3x^3 + 4x^2 + 2) \\
&\quad (2x^2 - 4x - 5)(x^3 + 5x^2 + 3x + 3) \\
&\quad (5x^2 + 4x + 2)(4x^3 + 3x^2 + x - 3) \\
&\quad (4x^2 - 3x + 3)(2x^3 + 4x^2 + 5x - 1) \\
&\quad (4x^2 - 3x + 1)(x^3 - 2x^2 - 5x - 5) \\
&\quad (3x^2 - 5x + 3)(5x^3 + 5x^2 - x - 5) \\
&\quad (x^2 - x + 3)(3x^3 + x^2 + 3x + 3) \\
&\quad (2x^2 + 5)(5x^3 - 5x^2 - x + 2) \\
&\quad (5x^2 + 4x - 4)(x^3 + x^2 + 4x + 2) \\
&\quad (x^2 - 5x + 3)(2x^3 + 5x^2 - 3x + 4) \\
&\quad (2x^2 + 4x + 5)(3x^3 + x^2 + 5x - 1) \\
&\quad (3x^2 - 3x + 1)(x^3 + 3x^2 + 5x - 5)
\end{aligned}$$

$$\begin{aligned}
& (4x^2 - 4x + 3)(3x^3 - 4x^2 - 5x - 3) & (4x^2 + 2x + 5)(4x^3 + x^2 + x - 4) & (2x^2 - 3)(x^3 - 5x^2 + 2x - 4) \\
& (5x^2 + 5x + 3)(x^3 + 2x^2 + 5x + 3) & (3x^2 + 3x + 1)(2x^3 - 5x^2 - 4x + 2) & (4x^2 + 3x + 1)(x^3 - 5x^2 + 2x - 4) \\
& (3x^2 + 1)(3x^3 + 4x^2 - 5x + 2) & (2x^2 + 4x + 5)(5x^3 - x^2 - 3) & (5x^2 + 2x + 1)(2x^3 + 3x^2 - 2) \\
& (x^2 - x + 5)(3x^3 - 2x - 2) & (4x^2 + 3)(5x^3 - 3x^2 - 3x - 2) & (4x^2 + 4x - 1)(3x^3 + x^2 - 4x + 2) \\
& (5x^2 - 5x + 3)(x^3 - 4x^2 - 4x - 4) & (4x^2 - 5x - 4)(4x^3 - x^2 + 5x - 3) & (2x^2 - 4x - 3)(4x^3 - 2x^2 - 3x - 1) \\
& (5x^2 - 4x - 4)(2x^3 + 3x^2 + 4x - 2) & (x^2 + x - 1)(5x^3 + 4x^2 + 4x + 3) & (5x^2 - 5x - 4)(4x^3 - 4x^2 + 3) \\
& (5x^2 - 4x + 3)(x^3 + 4x^2 + 5x + 5) & (2x^2 - 3x - 1)(3x^3 + 4x^2 - 3x + 5) & (3x^2 - 4x + 3)(3x^3 + 3x^2 + 2x + 1) \\
& (5x^2 + 2x - 4)(4x^3 + 5x^2 - x + 4) & (2x^2 + 2x - 1)(2x^3 + x^2 - 3x - 3) & (3x^2 - 4x + 4)(3x^3 + 5x^2 - x + 4) \\
& (5x^2 - 2x + 1)(x^3 + 4x^2 + 2x - 5) & (2x^2 - x + 2)(3x^3 - 2x^2 - x - 3) & (2x^2 - x + 2)(5x^3 - 4x^2 - 3x - 5) \\
& (x^2 + 3x + 4)(3x^3 - 2x^2 + 5x - 5) & (4x^2 - 3)(3x^3 + 5x^2 + x + 4) & (3x^2 + x - 3)(4x^3 - 3x^2 - 5x - 4) \\
& (4x^2 - x - 1)(x^3 + 3x^2 - 5) & (3x^2 - 5)(x^3 + 4x^2 - 3x + 2) & (5x^2 - 4)(4x^3 + x^2 - x - 1) \\
& (5x^2 - 3x + 2)(2x^3 - 5x^2 + 5) & (4x^2 - 3x - 4)(4x^3 + 5x^2 - 2x + 1) & (x^2 - x - 3)(3x^3 - x^2 - x + 2) \\
& (3x^2 + 5x + 1)(x^3 + 2x^2 - 5x + 1) & (3x^2 + 2)(x^3 + 2x^2 + 2x + 5) & (5x^2 - 3x + 4)(2x^3 - 4x^2 - 4x - 3) \\
& (5x^2 - 3x + 1)(4x^3 - 2x + 3) & (3x^2 + 2x + 1)(5x^3 - 5x^2 - 4x + 2) & (x^2 + 5x + 5)(5x^3 - 4x^2 - 4x + 1) \\
& (5x^2 - 5x + 3)(3x^3 + 4x^2 + x + 4) & (4x^2 - 4x - 5)(3x^3 - 3x^2 + 5x - 3) & (x^2 + 5x + 5)(4x^3 - 5x^2 + 5x + 5) \\
& (4x^2 - 5x - 5)(3x^3 + x^2 + 5x + 5) & (x^2 - 3x + 3)(3x^3 - 2x^2 + 4x + 1) & (x^2 + 1)(3x^3 + 3x^2 - 3x + 1) \\
& (x^2 + x - 5)(4x^3 - 2x^2 - 3x - 4) & (2x^2 - 4x - 3)(4x^3 + 3x^2 + 4x - 2) & (x^2 - 5)(2x^3 - 3x^2 - 3x - 2) \\
& (x^2 + 1)(5x^3 + 4x^2 + 3) & (5x^2 - 3x - 5)(4x^3 + x^2 - 5x + 1) & (x^2 - 3x + 4)(5x^3 + 4x^2 - 4x + 4) \\
& (3x^2 - 3x - 5)(x^3 - 4x^2 - 4) & (5x^2 - 2x - 4)(x^3 + 5x^2 + 4x - 2) & (4x^2 + 2x - 5)(5x^3 - x^2 - x + 1) \\
& (2x^2 + 3x + 4)(4x^3 - x + 4) & (4x^2 + 3x + 4)(x^3 + 2x^2 + 4) & (3x^2 + 3x + 1)(4x^3 - 2x^2 + 4x + 1) \\
& (3x^2 - 4x - 5)(4x^3 + 2x^2 + 4x + 3) & (5x^2 - 1)(5x^3 + 2x^2 - 5x + 1) & (5x^2 - x + 2)(x^3 + x^2 + 2x - 5) \\
& (4x^2 + x + 2)(x^3 - 5x^2 + 4x - 3) & (3x^2 - 3x + 4)(3x^3 + 2x^2 - 1) & (3x^2 + 2x - 4)(2x^3 - 4x^2 - x - 2) \\
& (4x^2 - 5x - 1)(4x^3 - 5x - 4) & (3x^2 - x + 1)(5x^3 + 5x^2 - x + 4) & (5x^2 - x + 3)(3x^3 + 4x^2 + 2x + 4) \\
& (3x^2 - 5x - 3)(5x^3 + 4x^2 + 3x + 3) & (x^2 - 5x + 5)(5x^3 + x^2 + 4x - 1) & (4x^2 + x + 2)(5x^3 + 5x^2 + 5x - 1) \\
& (5x^2 - x - 5)(3x^3 + 3x^2 - 5) & (x^2 - 3)(2x^3 + 3x^2 - 5x - 4) & (5x^2 + 5x + 3)(2x^3 - 3x + 5) \\
& (3x^2 + 3x + 5)(2x^3 - 2x^2 - 5x - 2) & (2x^2 + 5x - 1)(3x^3 - 3x^2 + x + 2) & (4x^2 + 3x - 2)(2x^3 - 3x^2 - 3x + 5) \\
& (x^2 + 5x - 3)(3x^3 - 4x^2 + 4x - 4) & (3x^2 + 4x + 3)(4x^3 + 2x^2 + 3x + 1) & (x^2 - 3x - 1)(4x^3 + 3x^2 + 3x - 2) \\
& (3x^2 - x - 5)(4x^3 - x + 4) & (2x^2 - 1)(3x^3 - 3x^2 - 3x + 1) & (4x^2 - 5x + 2)(2x^3 - x^2 + 2x - 5) \\
& (4x^2 + 3x + 3)(x^3 + 3x + 3) & (2x^2 - 4x - 1)(5x^3 - 5x^2 - 5x - 1) & (x^2 + 2x + 2)(4x^3 - 2x^2 + x + 2) \\
& (2x^2 - 4x - 5)(4x^3 - 3x^2 + 3x + 4) & (5x^2 + 3x - 4)(4x^3 - 2x^2 - 5x - 3) & (4x^2 + 3x - 5)(2x^3 - x^2 - x + 1) \\
& (3x^2 + 5)(3x^3 + x^2 - 3x + 5) & (5x^2 - x - 1)(5x^3 - 5x^2 + 2x + 5) & (2x^2 + 4x + 3)(5x^3 + x^2 + 4x + 4) \\
& (4x^2 - x + 5)(5x^3 + 3x^2 - 4x - 5) & (2x^2 + 2x + 5)(5x^3 + 4x^2 + 2x - 3) & (4x^2 + 5)(x^3 + 5x^2 - 4x - 5) \\
& (2x^2 + 1)(5x^3 - 4x^2 + x - 5) & (5x^2 - 5x + 2)(5x^3 - x^2 - 3x - 4) & (x^2 - 5)(3x^3 + 4x^2 - 3x - 1) \\
& (x^2 - x - 5)(2x^3 + 5x^2 + 2x + 3) & (2x^2 + x + 5)(x^3 - 2x^2 - 3x + 1) & (x^2 + 3x + 1)(5x^3 - 2x^2 - x - 5) \\
& (5x^2 + 1)(2x^3 - 2x^2 - 4x - 1) & (3x^2 - x - 1)(5x^3 - 2x^2 - 2x + 4) & (5x^2 + x + 4)(x^3 + 3x^2 + 4x + 1) \\
& (3x^2 - 4x + 5)(2x^3 + 4x^2 + 5x + 2) & (3x^2 - x + 1)(x^3 - 4x + 4) & (2x^2 + 4x - 1)(4x^3 - x^2 + 2) \\
& (2x^2 + 4x - 5)(2x^3 + 5x^2 + x + 3) & (2x^2 + 5x - 2)(x^3 + 2x^2 + 4x + 2) & (3x^2 + x - 5)(2x^3 - 4x^2 + x + 3) \\
& (4x^2 + 3x + 5)(4x^3 + x^2 + 3x - 5) & (4x^2 - x - 1)(x^3 - 3x^2 - 5x + 2) & (5x^2 + 5x + 3)(2x^3 - x^2 + 2x - 4) \\
& (5x^2 - 2x + 1)(3x^3 + x^2 - 2x - 1) & (3x^2 + 4x + 3)(5x^3 - 3x^2 - 2x - 2) & (x^2 + 3x - 5)(5x^3 - 5x^2 - 5x - 2) \\
& (3x^2 + 3x + 5)(5x^3 + 3x^2 + 3x - 4) & (4x^2 - x + 3)(x^3 - 3x - 5) & (x^2 + 4x + 2)(5x^3 - 5x^2 + 2x + 3) \\
& (5x^2 + x + 2)(5x^3 + 5x^2 - 4x + 4) & (x^2 + 3x - 5)(5x^3 - 3x^2 - 4x - 4) & (4x^2 + 3x - 4)(3x^3 + 2x^2 + 4x + 4) \\
& (4x^2 - 5x + 4)(2x^3 - 5x^2 + 2) & (3x^2 + 3x - 5)(5x^3 - 3x^2 - 3x - 5) & (x^2 - 5x - 2)(5x^3 - 3x^2 + 4x - 4)
\end{aligned}$$

8. 육차식의 인수분해

8.1 일계수 육차식 1형

$$\begin{aligned}(x^3 + 2x^2 + 2x + 5)(x^3 + x^2 + 5x - 3) \\ (x^3 + 4x^2 + x - 4)(x^3 + 4x^2 + x + 1) \\ (x^3 - 5x^2 - 4)(x^3 - 5x^2 - x + 3) \\ (x^3 + 5x + 3)(x^3 + 4x + 1) \\ (x^3 - 2x^2 + 3x + 2)(x^3 + 5x^2 + 2x - 1) \\ (x^3 - 2x^2 - x + 1)(x^3 + 5x^2 - 5x + 5) \\ (x^3 - x^2 + 3x + 2)(x^3 - 3x^2 - x - 3) \\ (x^3 - 2x^2 - 2x - 4)(x^3 + x^2 + 4x - 3) \\ (x^3 - 5x^2 - 5x + 5)(x^3 + 2x^2 - 4x - 4) \\ (x^3 + 3x - 5)(x^3 + 5x^2 + 3x + 5) \\ (x^3 + 2x^2 - 5x - 5)(x^3 - 5x^2 + 3x + 3) \\ (x^3 - 2x^2 - 2x - 5)(x^3 + 2x^2 + 2x - 3) \\ (x^3 - 5x^2 + 5x - 5)(x^3 + 2x^2 + 2x + 2) \\ (x^3 + 3x^2 + 2)(x^3 + x^2 + x - 2) \\ (x^3 + x^2 + 5x - 4)(x^3 - x^2 - 4x - 4) \\ (x^3 + 3x^2 - x - 5)(x^3 + 4x^2 + 5x - 2) \\ (x^3 + 5x^2 - 5x + 4)(x^3 + 4x^2 - 2) \\ (x^3 - 2x^2 + x + 5)(x^3 + 2x^2 - 5x + 5) \\ (x^3 + 3x^2 - 4x + 5)(x^3 - 2x^2 - 3x + 3) \\ (x^3 + 5x^2 - 3x - 5)(x^3 - 2x^2 - 5x + 1) \\ (x^3 - 5x^2 - 3x - 4)(x^3 - 4x^2 - 5x + 2) \\ (x^3 + 3x^2 + 5x + 4)(x^3 + x^2 + x - 5) \\ (x^3 - 3x^2 + 3x + 2)(x^3 - 2x^2 - x - 1) \\ (x^3 - 2x^2 - 5x - 3)(x^3 + x^2 + 2x + 5) \\ (x^3 - 5x^2 - 2x + 2)(x^3 - 4x^2 - 4x + 4) \\ (x^3 + 5x^2 - 5x + 1)(x^3 - 3x^2 + 5x + 1) \\ (x^3 + 5x^2 + 2x - 1)(x^3 - 3x^2 - 3x - 5) \\ (x^3 + 5x^2 + 3x - 3)(x^3 - 3x^2 - x - 4) \\ (x^3 + 2x^2 - 4x + 5)(x^3 + 2x^2 + 2x - 4) \\ (x^3 - 3x^2 + 4x - 1)(x^3 - 5x^2 - 3x - 2) \\ (x^3 + 2x - 5)(x^3 - 3x^2 - 5) \\ (x^3 + 2x^2 - x + 5)(x^3 + 2x^2 - 2x + 4) \\ (x^3 + 4x^2 + 2x - 5)(x^3 + 2x^2 - 5) \\ (x^3 - 5x^2 - 4x + 3)(x^3 + 5x^2 + 4x + 3)\end{aligned}$$

$$\begin{aligned}(x^3 + x^2 + 5x - 4)(x^3 - 5x^2 + x + 4) \\ (x^3 + 2x^2 - x - 5)(x^3 + x^2 - 4x - 1) \\ (x^3 + 3x^2 - x + 3)(x^3 + 5x^2 + 4x - 5) \\ (x^3 + 4x^2 - 3x + 4)(x^3 + 4x^2 + 3x + 4) \\ (x^3 - x^2 - 3x + 4)(x^3 - 3x^2 - 3x - 2) \\ (x^3 + x^2 - 2x - 4)(x^3 - 4x^2 - 3) \\ (x^3 - x^2 - x - 3)(x^3 + x^2 + x - 5) \\ (x^3 + 2x^2 + 2x - 2)(x^3 + 4x^2 + 3x + 1) \\ (x^3 - 3x^2 - 5x - 2)(x^3 - 3x^2 + 5x + 3) \\ (x^3 - 5x^2 + x - 2)(x^3 + 4x^2 - 3x + 2) \\ (x^3 - 5x^2 - 3x + 1)(x^3 - 4x^2 - x - 1) \\ (x^3 + 4x^2 + 2x + 3)(x^3 + x^2 + 3x - 3) \\ (x^3 + 2x^2 - 3x + 1)(x^3 - 5x^2 - 4x + 5) \\ (x^3 + 2x^2 - 2x + 4)(x^3 + 5x^2 - 2x + 2) \\ (x^3 - 5x^2 - 3)(x^3 - x^2 + x - 3) \\ (x^3 - 5x^2 - 1)(x^3 - 2x^2 + x - 4) \\ (x^3 - 5x^2 + 2x - 3)(x^3 - x^2 + 2x + 5) \\ (x^3 - 5x^2 + 3x + 2)(x^3 - 5x^2 - x + 3) \\ (x^3 + x + 3)(x^3 + 3x^2 + 3x - 4) \\ (x^3 + x + 4)(x^3 - 4x^2 + x - 2) \\ (x^3 + 3x + 5)(x^3 + 4x + 4) \\ (x^3 + 5x^2 - x + 2)(x^3 + 3x^2 + 5x - 5) \\ (x^3 - 5x^2 + 5x + 4)(x^3 - 4x^2 + 5x + 2) \\ (x^3 - x^2 - 4x - 1)(x^3 - 2x^2 + x + 2) \\ (x^3 + 5x^2 - 3x - 1)(x^3 - 4x^2 + x - 2) \\ (x^3 - 3x^2 - 4x - 3)(x^3 - 3x^2 - 3) \\ (x^3 + 3x^2 + 2x + 4)(x^3 - 3x^2 + 4x + 4) \\ (x^3 - 2x^2 + 4x - 4)(x^3 + x^2 + 5x + 4) \\ (x^3 - 4x^2 + 4x + 2)(x^3 + 2x^2 - 4x + 5) \\ (x^3 - 5x^2 + x - 1)(x^3 + x^2 - 5x + 2) \\ (x^3 - 5x^2 - 2x + 5)(x^3 - x^2 + 3) \\ (x^3 + 4x^2 - x + 1)(x^3 - 5x^2 + 4x + 2) \\ (x^3 + 4x^2 + 2)(x^3 + 5x^2 + 5x - 4) \\ (x^3 + 4x^2 - 4x + 3)(x^3 - 2x^2 + x + 2)\end{aligned}$$

$$\begin{aligned}
& (x^3 + 5x^2 + x + 1)(x^3 - 2x^2 - x - 2) \\
& (x^3 - 5x^2 - x - 1)(x^3 - 5x^2 + 4x + 3) \\
& (x^3 + 5x^2 - 4x + 3)(x^3 - 5x^2 - 5x - 2) \\
& (x^3 + 2x^2 + 3x - 1)(x^3 - 4x^2 - x - 3) \\
& (x^3 - 4x^2 - 2x + 4)(x^3 - 4x - 1) \\
& (x^3 - x^2 + 5x - 3)(x^3 + 4x + 4) \\
& (x^3 - 4x^2 - 5x + 5)(x^3 - 4x^2 - 2x - 3) \\
& (x^3 - 5x^2 + 3x - 3)(x^3 - 3x^2 + 2x + 4) \\
& (x^3 - 4x^2 - x - 1)(x^3 + 5) \\
& (x^3 + x^2 - 4x + 5)(x^3 - 5x^2 + 4x + 2) \\
& (x^3 + 2x^2 + 5x + 2)(x^3 - x^2 + 2x + 5) \\
& (x^3 - 3x^2 + 4x + 4)(x^3 + 2x^2 + 2x + 2) \\
& (x^3 - 3x^2 + 4x + 2)(x^3 - 4x^2 - 2x + 1) \\
& (x^3 + 4x^2 - 4x + 1)(x^3 - 3x^2 + 2x + 3) \\
& (x^3 - x^2 - 2x + 1)(x^3 - 3x^2 - 4) \\
& (x^3 + 4x^2 + 5x - 5)(x^3 - x^2 + 5x - 2) \\
& (x^3 + 3x^2 - 5x - 1)(x^3 + 5x - 2) \\
& (x^3 - 3x^2 - 5x - 4)(x^3 + 4x^2 - 4x + 3) \\
& (x^3 + 2x^2 + 4x + 5)(x^3 + x^2 - 5x + 5) \\
& (x^3 + 2x^2 + 3x - 4)(x^3 + 3x^2 + 2) \\
& (x^3 + 4x^2 - 5x + 1)(x^3 + 5x^2 + 2x + 2) \\
& (x^3 + 5x^2 + x + 1)(x^3 + 3x^2 - 5x - 5) \\
& (x^3 + 2x^2 + x + 5)(x^3 - 3x^2 - 5x + 5) \\
& (x^3 - x^2 - 3x - 4)(x^3 + 2x^2 - 5x - 3) \\
& (x^3 - 4x^2 + 4x + 3)(x^3 - 4x^2 - 4x + 4) \\
& (x^3 - x^2 + 4x - 2)(x^3 - 3x^2 + 3x - 4)
\end{aligned}$$

8.2 일계수 육차식 2형

$$\begin{aligned}
& (x^2 + 2x - 5)(x^2 + 4x - 2)(x^2 + 2x - 5) \\
& (x^2 + x + 4)(x^2 - 4x - 1)(x^2 + 5x - 5) \\
& (x^2 + x + 3)(x^2 - 3x + 5)(x^2 + 2x - 4) \\
& (x^2 + x + 5)(x^2 + x + 2)(x^2 - 4x - 3) \\
& (x^2 - 2)(x^2 - 2x - 1)(x^2 + 3x + 3) \\
& (x^2 + 2x - 4)(x^2 - 2x + 4)(x^2 - x + 3) \\
& (x^2 - 5x - 1)(x^2 - 2x - 1)(x^2 + 3x + 5) \\
& (x^2 + x + 4)(x^2 + 3x + 1)(x^2 - x + 3) \\
& (x^2 - 3x + 1)(x^2 + x + 2)(x^2 + x + 4) \\
& (x^2 - 5x + 1)(x^2 - 5x - 5)(x^2 + x + 5) \\
& (x^2 + 3x + 1)(x^2 + 3x - 1)(x^2 + 3x + 3) \\
& (x^2 + 5x + 5)(x^2 + 4x - 1)(x^2 + 2x - 5) \\
& (x^2 - x - 1)(x^2 - 2x - 5)(x^2 + 3x + 1) \\
& (x^2 + x + 4)(x^2 - 3x + 3)(x^2 + 5x + 5) \\
& (x^2 + 4x - 2)(x^2 - 3x - 3)(x^2 + 3) \\
& (x^2 + 2x - 1)(x^2 + x + 3)(x^2 + 4x + 5) \\
& (x^2 + 5x - 2)(x^2 - 2)(x^2 + x + 5) \\
& (x^2 - 3x - 5)(x^2 + 3x - 1)(x^2 - x - 3)
\end{aligned}$$

$$\begin{aligned}
& (x^3 + 2x^2 + 5x - 4)(x^3 + 3x^2 + 2x - 4) \\
& (x^3 - 4x^2 - 4x + 2)(x^3 + 5x^2 - x + 5) \\
& (x^3 - 5x^2 - 2x + 3)(x^3 - 5x + 3) \\
& (x^3 - 4x^2 - 4)(x^3 + 2x^2 - x + 1) \\
& (x^3 + 3x - 1)(x^3 - 5x^2 + x + 4) \\
& (x^3 - 2x^2 - 1)(x^3 + 3x^2 + 5x - 5) \\
& (x^3 + 4x^2 - 4x - 5)(x^3 + 2x^2 - 4x + 3) \\
& (x^3 - 3x^2 - 3x - 1)(x^3 - 3x^2 - 2x - 4) \\
& (x^3 - x^2 - 2x - 5)(x^3 - 2x^2 - 3x - 2) \\
& (x^3 + 4)(x^3 - x^2 + 4x + 1) \\
& (x^3 - 4x^2 + x + 5)(x^3 - 5x^2 - 3x + 5) \\
& (x^3 - 4x^2 + 2x + 5)(x^3 + 2x^2 + 2x - 4) \\
& (x^3 - 2x^2 + 2x + 2)(x^3 - 4x^2 - 5x - 2) \\
& (x^3 - 2x^2 - 4x - 4)(x^3 - 4x^2 - 4x + 2) \\
& (x^3 - x - 4)(x^3 - x^2 + 2x + 3) \\
& (x^3 - 4x^2 - 1)(x^3 + 2x^2 + 3x - 4) \\
& (x^3 - 3x^2 - 4x - 3)(x^3 + 4x^2 - 4x + 1) \\
& (x^3 - 2x^2 + 4x - 2)(x^3 - 5x^2 + x + 1) \\
& (x^3 + 2x^2 - 5x - 3)(x^3 - x^2 + x - 4) \\
& (x^3 - 3x^2 - 5)(x^3 - 3x - 4) \\
& (x^3 + 4x^2 - 5x + 3)(x^3 - 3x^2 - x + 5) \\
& (x^3 + 4x^2 + 4x + 2)(x^3 + x^2 - 2x - 4) \\
& (x^3 - 4x^2 + 4x + 1)(x^3 - 4x^2 + x - 3) \\
& (x^3 + 5x^2 - x - 4)(x^3 - 4x^2 + x + 3) \\
& (x^3 + 2x - 2)(x^3 + 4x^2 - 5x + 5) \\
& (x^3 - 3x - 4)(x^3 + 2x - 5)
\end{aligned}$$

$$\begin{aligned}
& (x^2 + x + 2)(x^2 - 4x + 2)(x^2 - 3x + 1) \\
& (x^2 - 2x - 5)(x^2 - 2x - 5)(x^2 - 4x + 2) \\
& (x^2 + x - 5)(x^2 + 5x + 1)(x^2 + 2) \\
& (x^2 + 1)(x^2 + 1)(x^2 - 2x + 3) \\
& (x^2 - 3x - 3)(x^2 - 2x + 3)(x^2 + x + 1) \\
& (x^2 - 3x + 4)(x^2 + 3x + 1)(x^2 - x + 4) \\
& (x^2 - 3x - 3)(x^2 - 4x - 1)(x^2 - 4x + 2) \\
& (x^2 + 3x - 3)(x^2 + 1)(x^2 - 3x + 3) \\
& (x^2 - 2x + 2)(x^2 - 4x + 1)(x^2 + 4x - 2) \\
& (x^2 - 3x + 4)(x^2 + 2x - 2)(x^2 + x + 1) \\
& (x^2 + 3x + 4)(x^2 - x - 3)(x^2 + 5x + 1) \\
& (x^2 - 2x - 1)(x^2 - 5x - 2)(x^2 + 3) \\
& (x^2 - 4x + 1)(x^2 + 5x + 2)(x^2 + 4x - 3) \\
& (x^2 + x - 4)(x^2 - 4x + 2)(x^2 - 5x + 5) \\
& (x^2 + 3x - 3)(x^2 - 4x - 3)(x^2 + 4x + 2) \\
& (x^2 + x + 3)(x^2 + x + 2)(x^2 + 4) \\
& (x^2 + 3x - 1)(x^2 - 3x + 3)(x^2 - x + 4) \\
& (x^2 + 5x + 3)(x^2 + 4x - 3)(x^2 - 5x + 3)
\end{aligned}$$

$$\begin{aligned}
&(x^2 + 2x - 4)(x^2 - 3x + 5)(x^2 - 2x + 2) \\
&(x^2 + 4x - 4)(x^2 - 2x - 5)(x^2 - x - 3) \\
&(x^2 + 4x - 1)(x^2 + 2x - 1)(x^2 - 3x - 1) \\
&(x^2 - 4x + 2)(x^2 + 5x + 3)(x^2 - 5x - 1) \\
&(x^2 + 3x - 1)(x^2 - 4x + 5)(x^2 - 5x - 1) \\
&(x^2 - x + 5)(x^2 + 4x + 2)(x^2 + 3x - 5) \\
&(x^2 - 5x - 2)(x^2 - x + 2)(x^2 - 2x + 5) \\
&(x^2 - x + 4)(x^2 + 5)(x^2 - 3x - 1) \\
&(x^2 - 5x + 3)(x^2 - 3x - 2)(x^2 + 4x - 4) \\
&(x^2 - 3x - 2)(x^2 + 3x + 4)(x^2 - 5x - 1) \\
&(x^2 - 4x - 3)(x^2 - 2x - 4)(x^2 - 3x + 5) \\
&(x^2 - 5x - 1)(x^2 - 3x - 2)(x^2 - 4x + 5) \\
&(x^2 + x - 3)(x^2 + 4x + 1)(x^2 + 5x + 5) \\
&(x^2 + 3x + 1)(x^2 + x + 3)(x^2 - 5x + 3) \\
&(x^2 + 2x + 3)(x^2 + x - 5)(x^2 + 2x + 2) \\
&(x^2 + 3x + 5)(x^2 + 5x + 1)(x^2 - x - 1) \\
&(x^2 - x - 3)(x^2 + 5x - 3)(x^2 + 5x + 3) \\
&(x^2 - 4x - 1)(x^2 + 2x - 4)(x^2 - x - 1) \\
&(x^2 + x + 2)(x^2 - 4x - 1)(x^2 - 2x - 2) \\
&(x^2 - x - 3)(x^2 + 4x - 2)(x^2 + 4x - 3) \\
&(x^2 + 2x + 5)(x^2 + 3x + 5)(x^2 - 3) \\
&(x^2 + 2x - 2)(x^2 + x + 5)(x^2 + 5x + 3) \\
&(x^2 - x + 1)(x^2 - 4x + 5)(x^2 + 4x - 3) \\
&(x^2 - 5x - 2)(x^2 - 5x + 5)(x^2 - 4x - 1) \\
&(x^2 - 2)(x^2 - x - 1)(x^2 - 3x - 1) \\
&(x^2 + 5x - 4)(x^2 + 2x + 2)(x^2 + 3x - 2) \\
&(x^2 - x + 5)(x^2 - x + 4)(x^2 + 3x - 1) \\
&(x^2 - 2x + 5)(x^2 + 2x + 5)(x^2 - 2x - 1) \\
&(x^2 + 5x + 3)(x^2 - x - 3)(x^2 + 3x - 3) \\
&(x^2 - 2x - 2)(x^2 + 3x + 1)(x^2 + 1) \\
&(x^2 + 3x + 5)(x^2 + 3x - 3)(x^2 + 3x + 5) \\
&(x^2 + 2x - 5)(x^2 - 5x - 5)(x^2 + 4x - 3) \\
&(x^2 - 2x - 4)(x^2 - x + 2)(x^2 + x + 5) \\
&(x^2 + 2x - 5)(x^2 + 3x + 4)(x^2 - 3x + 3) \\
&(x^2 - x - 3)(x^2 - 5x + 5)(x^2 - 2x - 5) \\
&(x^2 + 5x - 1)(x^2 + 4x - 1)(x^2 - 3x + 5) \\
&(x^2 - 3x + 1)(x^2 - 3)(x^2 + 2x - 5) \\
&(x^2 + x - 1)(x^2 + x - 3)(x^2 - x - 5) \\
&(x^2 - 5x + 1)(x^2 - 4x - 4)(x^2 - 5x + 1) \\
&(x^2 + x + 1)(x^2 - x - 4)(x^2 - 5x - 5) \\
&(x^2 + 5x - 5)(x^2 - 3x - 1)(x^2 + 3x + 1) \\
&(x^2 - 4x - 2)(x^2 - x + 2)(x^2 + x + 2)
\end{aligned}$$

$$\begin{aligned}
&(x^2 - 5x + 1)(x^2 - x - 5)(x^2 - 2x - 5) \\
&(x^2 + 4x - 1)(x^2 - x - 1)(x^2 + 3x - 5) \\
&(x^2 - 2x - 4)(x^2 - x + 5)(x^2 + 5x + 3) \\
&(x^2 + 3x + 5)(x^2 + 4x - 3)(x^2 - 5x + 5) \\
&(x^2 - 2x - 2)(x^2 - 5x + 3)(x^2 - 2x + 4) \\
&(x^2 - 3x - 2)(x^2 + 4x - 4)(x^2 + x - 4) \\
&(x^2 - x + 5)(x^2 + x - 4)(x^2 - 3x + 5) \\
&(x^2 - 4x + 5)(x^2 - 4x - 2)(x^2 + x - 4) \\
&(x^2 + 3x - 5)(x^2 + x + 3)(x^2 - 2x + 2) \\
&(x^2 - 2x + 2)(x^2 - 4x + 5)(x^2 - 2x - 1) \\
&(x^2 + 4x - 2)(x^2 - x + 2)(x^2 - 4x + 2) \\
&(x^2 + 5x + 5)(x^2 - 3x - 1)(x^2 - 3x - 1) \\
&(x^2 + x + 5)(x^2 + 4x + 5)(x^2 - x + 5) \\
&(x^2 - 2x - 5)(x^2 - 3x + 5)(x^2 - 2x + 4) \\
&(x^2 - 2)(x^2 + 4x - 3)(x^2 + 4x + 2) \\
&(x^2 + 3x - 2)(x^2 - 3x - 1)(x^2 - x + 5) \\
&(x^2 + x - 4)(x^2 + 3x - 5)(x^2 + 5x - 5) \\
&(x^2 + 5x - 3)(x^2 - 3x - 5)(x^2 - 5x + 1) \\
&(x^2 - 4x - 3)(x^2 + 4x + 5)(x^2 - 5x + 1) \\
&(x^2 - 3x - 2)(x^2 + 4x + 5)(x^2 - 4x + 1) \\
&(x^2 + 5x + 5)(x^2 + x - 5)(x^2 + 4x - 2) \\
&(x^2 - 4x + 5)(x^2 + 2x + 3)(x^2 - x - 3) \\
&(x^2 - 3)(x^2 - 4x + 1)(x^2 - x - 1) \\
&(x^2 - 3x + 4)(x^2 + x + 3)(x^2 + 1) \\
&(x^2 - x + 4)(x^2 - 2x + 3)(x^2 - 5x + 1) \\
&(x^2 - 3x + 4)(x^2 + x - 3)(x^2 + 3x + 3) \\
&(x^2 - 5x - 1)(x^2 - 5)(x^2 + x - 1) \\
&(x^2 + 2x + 3)(x^2 + 5x + 3)(x^2 + 3x + 3) \\
&(x^2 - 2x - 4)(x^2 - x - 4)(x^2 - 5x - 1) \\
&(x^2 + x + 5)(x^2 + 5x - 1)(x^2 - 5x - 2) \\
&(x^2 - 2x - 5)(x^2 - 2)(x^2 - 3x - 3) \\
&(x^2 - 4x - 4)(x^2 - x + 3)(x^2 - x - 1) \\
&(x^2 - 3x - 3)(x^2 + 5x + 2)(x^2 + 5x - 1) \\
&(x^2 + 5x + 3)(x^2 + 2x - 5)(x^2 - 3) \\
&(x^2 - 4x + 2)(x^2 + 3x - 3)(x^2 - 2x + 4) \\
&(x^2 - 5x + 1)(x^2 - x + 2)(x^2 - x - 3) \\
&(x^2 + 5x - 5)(x^2 - 3)(x^2 + 4x - 4) \\
&(x^2 + 2x - 5)(x^2 + 3x + 5)(x^2 - 3) \\
&(x^2 + 5x - 2)(x^2 + 2x + 3)(x^2 - 2x - 5) \\
&(x^2 + 4x - 3)(x^2 - 2x + 5)(x^2 + 4) \\
&(x^2 + x + 1)(x^2 - x - 1)(x^2 - 2x - 4) \\
&(x^2 - 3x + 3)(x^2 - x + 5)(x^2 - 3x - 5)
\end{aligned}$$

8.3 일계수 육차식 3형

$$\begin{aligned}
&(x^2 + 5x + 3)(x^4 + 2x^3 + x^2 + x - 1) \\
&(x^2 + 4x + 1)(x^4 - x^3 + 5x^2 + 4x + 1)
\end{aligned}$$

$$\begin{aligned}
&(x^2 + 5x - 4)(x^4 - x^3 + 5x^2 + 3x - 2) \\
&(x^2 + 5x - 5)(x^4 - 2x^3 - 5x^2 - 2x - 3)
\end{aligned}$$

$$\begin{aligned}
&(x^2 + 3x + 1)(x^4 + 4x^3 + 4x^2 - 3x - 2) \\
&(x^2 - x + 1)(x^4 + x^3 + 4x^2 + x - 5) \\
&(x^2 + 2x + 3)(x^4 - 3x^3 - 2x^2 + 3x - 5) \\
&(x^2 + 5x - 4)(x^4 + 4x^3 + 3x^2 + 3x - 2) \\
&(x^2 + 5x + 2)(x^4 + 3x^3 - 3x^2 + 4x + 2) \\
&(x^2 + 2x + 5)(x^4 - x^3 + 3x^2 - 3x - 4) \\
&(x^2 - 5x + 2)(x^4 - x^3 - x^2 + 4x - 1) \\
&(x^2 + 4x + 2)(x^4 + x + 2) \\
&(x^2 + x - 3)(x^4 - x^3 + 3x^2 + 3x + 3) \\
&(x^2 + 3x - 3)(x^4 + 5x^3 - 4x^2 - 3x - 1) \\
&(x^2 + 3)(x^4 - 2x^2 - x + 4) \\
&(x^2 - 4x - 3)(x^4 + 3x^2 + 2x + 5) \\
&(x^2 - 5x - 2)(x^4 - 3x^3 + 3x^2 - x + 4) \\
&(x^2 + x + 1)(x^4 - 3x^3 - 4x^2 + 5x + 4) \\
&(x^2 - 5x + 2)(x^4 - 4x^3 - x - 4) \\
&(x^2 - 3x + 5)(x^4 + 3x^2 + 5x + 2) \\
&(x^2 - 5x + 2)(x^4 - 3x^3 - 5x - 4) \\
&(x^2 + x + 4)(x^4 + x^3 + 2x^2 - 3x + 5) \\
&(x^2 + 3x - 2)(x^4 + 3x^3 + 3x^2 + 3x - 2) \\
&(x^2 + 3x + 3)(x^4 - x^3 - 4x^2 + 3) \\
&(x^2 + x - 3)(x^4 + 5x^3 + x^2 - 2x + 5) \\
&(x^2 + 2x + 3)(x^4 - 2x^3 + 4x^2 + 2x - 3) \\
&(x^2 + x - 1)(x^4 - x^3 + 5x^2 + 4x + 1) \\
&(x^2 - 3x - 2)(x^4 + 3x^3 + 4x^2 - 4x + 2) \\
&(x^2 + 2x + 4)(x^4 + 2x^3 + 5x^2 - 2) \\
&(x^2 + x + 2)(x^4 + 3x^3 - x^2 - 4x - 2) \\
&(x^2 + 2x + 2)(x^4 - 3x^3 + 2x^2 + 2x + 1) \\
&(x^2 + x + 1)(x^4 - 5x^3 - 4x^2 + 2x + 3) \\
&(x^2 - 4x - 3)(x^4 - 4x^3 - 3x^2 + 5x + 2) \\
&(x^2 + 3x - 5)(x^4 + 3x^3 - 4x^2 - x - 5) \\
&(x^2 + 4x - 3)(x^4 - 2x^3 - 3x^2 - 3) \\
&(x^2 - 4x + 5)(x^4 - x^3 + 5x^2 + 4x + 5) \\
&(x^2 + 4x + 2)(x^4 - x^3 - 4x - 5) \\
&(x^2 - 5x - 5)(x^4 - 5x^2 + 5x - 5) \\
&(x^2 + 5x - 2)(x^4 + x^3 + 3x^2 - 3x - 1) \\
&(x^2 - x + 2)(x^4 - 4x^3 - 4x^2 + 5x - 5) \\
&(x^2 + x + 3)(x^4 - 2x^3 - 3x - 3) \\
&(x^2 - 5x - 3)(x^4 - 2x^3 + 3x^2 + 5) \\
&(x^2 - 2x + 2)(x^4 + x^3 + 3x^2 - 3x - 1) \\
&(x^2 + 5x - 3)(x^4 + 3x^3 + 2x^2 - 3x + 5) \\
&(x^2 - 5x + 5)(x^4 + 2x^3 + 5x^2 - 5x - 5) \\
&(x^2 + 4x + 1)(x^4 - 5x^3 + x^2 + 2x - 4) \\
&(x^2 - 3x - 1)(x^4 - 5x^3 - 2x^2 - 2x + 4) \\
&(x^2 - 4x - 1)(x^4 + 2x^2 - 5x - 2) \\
&(x^2 + 4)(x^4 + x^3 - 2x^2 + x - 2) \\
&(x^2 - 2)(x^4 + x^3 - x^2 + 5) \\
&(x^2 + 2x + 3)(x^4 + 4x^3 - x + 1)
\end{aligned}$$

$$\begin{aligned}
&(x^2 - 2x - 5)(x^4 - 5x^3 - 4x - 1) \\
&(x^2 + 5x - 2)(x^4 + 4x^3 - x + 5) \\
&(x^2 - 5x + 3)(x^4 + 2x^2 + 3x + 1) \\
&(x^2 - 3x - 3)(x^4 + 3x^3 + x^2 - 2x + 5) \\
&(x^2 - 2x - 4)(x^4 - 3x^3 + 3x^2 + 5x + 4) \\
&(x^2 + 3x - 5)(x^4 - 5x^3 - 5x^2 - 3x - 5) \\
&(x^2 + 3x - 1)(x^4 + 3x^3 + 5x^2 + x - 4) \\
&(x^2 - 3x - 3)(x^4 - 4x^2 + 5) \\
&(x^2 + 4x + 2)(x^4 - 5x^3 - x^2 - 2x - 3) \\
&(x^2 - 3x - 2)(x^4 - 4x^3 + 2x^2 - 1) \\
&(x^2 + x + 3)(x^4 - 3x^3 - 5x^2 + 5x + 4) \\
&(x^2 + 3x + 4)(x^4 + 2x^3 + 2x^2 - 3x + 2) \\
&(x^2 - 5x + 2)(x^4 + 2x^3 + 5x^2 + 5) \\
&(x^2 + 5x + 3)(x^4 - 4x^3 - 4x^2 + 2) \\
&(x^2 + 5x - 3)(x^4 + 4x^3 + x^2 + 4x - 1) \\
&(x^2 + 3x - 3)(x^4 - 5x^3 - 3x^2 + 5x - 4) \\
&(x^2 + 4x - 1)(x^4 - x^3 + 2x^2 + 2x - 1) \\
&(x^2 + 4x - 1)(x^4 - x^3 + 5x^2 - 3x - 1) \\
&(x^2 - 2x - 1)(x^4 + 2x^3 + 2x^2 + 3x - 5) \\
&(x^2 + 5x + 2)(x^4 - 3x^3 + 2x^2 - 5) \\
&(x^2 + 4x + 1)(x^4 + 4x^2 + 5x - 2) \\
&(x^2 - 3x + 1)(x^4 - 4x^3 - 2x + 1) \\
&(x^2 - 2x + 3)(x^4 - 2x^3 + 4x^2 - x + 1) \\
&(x^2 + 5x - 4)(x^4 - 4x^3 + 2x^2 - 2x - 3) \\
&(x^2 + 2x - 4)(x^4 - 3x^3 + 2x - 5) \\
&(x^2 + 1)(x^4 - 3x^3 - 5x^2 - 4x - 5) \\
&(x^2 - x - 3)(x^4 - 4x^3 - x^2 - 4x + 1) \\
&(x^2 - x - 4)(x^4 - 5x^3 - x^2 - 4) \\
&(x^2 + x + 4)(x^4 - 5x^2 + x - 4) \\
&(x^2 + 3x - 1)(x^4 - 3x^3 - x^2 + 2x + 2) \\
&(x^2 + 4x - 2)(x^4 - 2x^3 - 4x + 4) \\
&(x^2 + 5x + 2)(x^4 - 3x^3 - 3x - 3) \\
&(x^2 + 2x + 3)(x^4 + 3x^3 + 5x^2 + x + 5) \\
&(x^2 - 2x - 1)(x^4 + 4x^3 - x^2 - 3x - 2) \\
&(x^2 + 5x - 2)(x^4 - 4x^3 - 5x^2 + 5x + 4) \\
&(x^2 + x + 5)(x^4 - 4x^3 - 4x^2 + 4x - 3) \\
&(x^2 - 4x - 4)(x^4 + 3x^2 - 4x + 4) \\
&(x^2 + 3x + 1)(x^4 - 3x^3 - 3x^2 + 1) \\
&(x^2 + 3x - 1)(x^4 + 4x^3 - x^2 - 2x - 1) \\
&(x^2 + 5x + 5)(x^4 + x^3 - 4x^2 - 4x + 1) \\
&(x^2 - 5x + 5)(x^4 + 3x^3 + 3x^2 + x - 1) \\
&(x^2 - 5x - 4)(x^4 + 2x^3 + x^2 - 3x + 5) \\
&(x^2 - 5x + 2)(x^4 + 5x^3 + 4x + 1) \\
&(x^2 - 4x - 2)(x^4 - 5x^3 + x^2 + x + 5) \\
&(x^2 + 3x + 1)(x^4 + x^3 + x^2 + 2x + 3) \\
&(x^2 + 4x + 1)(x^4 + 2x^3 - 4x^2 - 5x + 4) \\
&(x^2 - 4x - 3)(x^4 - 4x^3 + 4x - 2)
\end{aligned}$$

$$\begin{aligned}
& (x^2 - 5x + 2)(x^4 - 2x^3 + 5x^2 - 3) \\
& (x^2 - 2x + 5)(x^4 - 4x^3 + 2x^2 - 2x - 1) \\
& (x^2 + 2x + 2)(x^4 - 5x^3 - 3x^2 + x + 2) \\
& (x^2 + 3x - 3)(x^4 - 3x^3 + 3x^2 - 2) \\
& (x^2 + x + 3)(x^4 - 5x^3 - 4x^2 - 2x + 2) \\
& (x^2 + 5x + 1)(x^4 + 3x^3 - 2x^2 - 4) \\
& (x^2 + 4)(x^4 + 2x^3 - 3x^2 - 3x + 5) \\
& (x^2 + x - 5)(x^4 + 3x^3 + 5x^2 + 2) \\
& (x^2 + 5x + 2)(x^4 - 3x^3 + 4x^2 - 5x - 3) \\
& (x^2 - 5x - 4)(x^4 + 4x^2 - 2x - 2) \\
& (x^2 + 4)(x^4 - 5x^3 + x^2 + 3x + 3)
\end{aligned}$$

$$\begin{aligned}
& (x^2 + 4x + 2)(x^4 - 3x^3 - 5x^2 + x + 1) \\
& (x^2 + 4x - 2)(x^4 + 5x^3 - 2x^2 + 2x + 2) \\
& (x^2 + 2)(x^4 - 5x^3 - 3x^2 - 3x + 1) \\
& (x^2 - 4x + 2)(x^4 - 5x^3 + 3x^2 - 4x - 2) \\
& (x^2 + 3x + 5)(x^4 - 5x^3 + 4x^2 + 3x - 4) \\
& (x^2 - 4x - 3)(x^4 + 2x^3 + 4x^2 - 5x - 5) \\
& (x^2 - x - 4)(x^4 - 5x^3 + 4x^2 - 3x - 2) \\
& (x^2 + 2x - 2)(x^4 - 3x^2 - 4x + 1) \\
& (x^2 + x + 2)(x^4 - 2x^3 + 5x^2 + x - 4) \\
& (x^2 - 5)(x^4 - 4x^3 + x^2 + 5x + 5) \\
& (x^2 + 3x - 1)(x^4 + 5x^3 + 3x^2 + 3x + 1)
\end{aligned}$$

8.4 일계수가 아닌 육차식 1형

$$\begin{aligned}
& (3x^3 - 5x^2 + 3x + 5)(4x^3 - x^2 - 2x - 2) \\
& (5x^3 - 4x^2 - x - 1)(3x^3 + 4x^2 - 3x + 1) \\
& (3x^3 - x^2 - 4x - 1)(x^3 - x^2 + 2x + 1) \\
& (4x^3 - 2x^2 + 5x - 1)(4x^3 + x^2 - 3x + 5) \\
& (2x^3 + 3x^2 + x - 4)(x^3 - 3x^2 - 5x - 5) \\
& (5x^3 - 5x^2 + 5x + 4)(2x^3 + x^2 - x + 1) \\
& (3x^3 - x - 4)(4x^3 + 5x^2 - 4x + 2) \\
& (4x^3 - 5x^2 - x - 5)(3x^3 - 5x^2 - 4x + 5) \\
& (x^3 + x^2 + 3x - 1)(5x^3 - 4x^2 - 4x - 3) \\
& (x^3 - 3x^2 - 3x - 3)(5x^3 - x^2 + 5x + 1) \\
& (x^3 - x^2 - x - 3)(2x^3 + 2x^2 - x + 4) \\
& (3x^3 - 4x^2 + x - 5)(x^3 + 4x^2 + 4) \\
& (5x^3 - 5x^2 - 2x + 5)(3x^3 + 2x^2 + 3) \\
& (4x^3 + 5x^2 - 2x - 5)(3x^3 + 3x^2 - 2x + 2) \\
& (x^3 + 3x^2 + x + 2)(2x^3 + 5x^2 + 4x + 3) \\
& (2x^3 + x^2 - 4)(2x^3 - x^2 + x + 3) \\
& (5x^3 + 4x^2 - 2x + 5)(5x^3 + 5x + 3) \\
& (x^3 - 5x^2 + 5x - 2)(4x^3 + 2x + 1) \\
& (3x^3 - 5x^2 + 2x + 2)(3x^3 - 2x^2 - 5) \\
& (2x^3 + 2x^2 - 3x - 5)(x^3 + 4x^2 + 3x + 3) \\
& (x^3 - 2x^2 + x - 4)(4x^3 - x^2 - 4x - 5) \\
& (2x^3 - x^2 + 2x - 2)(5x^3 + 2x + 5) \\
& (5x^3 + x^2 + 5x + 3)(x^3 + 5x + 1) \\
& (5x^3 - 5x^2 + 2x - 5)(2x^3 + 3x^2 - 2x - 2) \\
& (4x^3 - 4x + 5)(5x^3 + 3x^2 + 2x - 5) \\
& (4x^3 + 5x^2 - 2)(4x^3 + 3x^2 - 3x + 1) \\
& (3x^3 + 4x^2 + 5x - 4)(x^3 - 3x^2 + 4x + 2) \\
& (4x^3 + 2x^2 - 3x + 2)(5x^3 + 4x^2 - 5x + 3) \\
& (x^3 + 2x^2 + 2x - 1)(4x^3 + 3x^2 + 2x + 2) \\
& (x^3 - 4x^2 + 2x - 3)(3x^3 + x^2 + 5x - 1) \\
& (3x^3 - 3x^2 + 4x - 5)(5x^3 - x^2 + 5) \\
& (x^3 - 3x^2 - 3x + 4)(2x^3 - x^2 + x - 3) \\
& (5x^3 - x^2 - 4x + 1)(5x^3 + 5x^2 - 2x + 5)
\end{aligned}$$

$$\begin{aligned}
& (3x^3 - 3x^2 - 4x - 2)(4x^3 + 4x^2 + 2x - 3) \\
& (2x^3 - x^2 + 4x + 2)(2x^3 - x^2 + 2) \\
& (2x^3 - 5x^2 - 4x - 1)(3x^3 + 5x^2 - 4x + 1) \\
& (x^3 - 4x^2 + 4x + 2)(3x^3 + 4x^2 - x + 2) \\
& (3x^3 - x^2 - x + 1)(4x^3 + x^2 - 4x + 4) \\
& (x^3 + 4x^2 - x + 4)(2x^3 - 5x^2 + 3x + 4) \\
& (2x^3 + x - 5)(4x^3 - 2x^2 - 5x - 2) \\
& (2x^3 + 3x + 3)(3x^3 + 3x^2 - 5x + 4) \\
& (5x^3 + 5x^2 - 5x + 4)(5x^3 + 4x^2 + 5x - 1) \\
& (3x^3 - 5)(5x^3 - 3x^2 - 5) \\
& (2x^3 - x^2 + 3x + 1)(3x^3 + 4x^2 + 3x - 2) \\
& (2x^3 - 2x^2 - 4x + 5)(2x^3 - x^2 - 3x - 3) \\
& (5x^3 + x^2 - 2x - 2)(5x^3 - 3x^2 - x + 5) \\
& (4x^3 - 5x^2 - 3x + 2)(4x^3 + 2x^2 + 5x + 5) \\
& (3x^3 + 3x^2 - 2x + 2)(3x^3 - 2x^2 - x - 3) \\
& (5x^3 - 4x^2 + 5x + 5)(5x^3 + 4x^2 + 5x - 2) \\
& (2x^3 + 4x^2 + x + 4)(5x^3 - x^2 - x + 3) \\
& (2x^3 + x^2 + 4x - 3)(5x^3 - 5x^2 - 3x + 4) \\
& (2x^3 - x^2 - 2x - 1)(x^3 + x^2 + 3x + 5) \\
& (4x^3 + 4x^2 - x + 5)(2x^3 - 3x^2 - 2x - 4) \\
& (2x^3 - 4x^2 - 3)(x^3 - 5x^2 - 2x + 2) \\
& (2x^3 - x - 2)(5x^3 + 5x^2 + 4x - 4) \\
& (2x^3 + 3x^2 + 5x - 2)(3x^3 - x^2 + 1) \\
& (2x^3 + 3x^2 - 4x - 2)(3x^3 + 3x^2 - x + 3) \\
& (x^3 + 5x^2 + 3x - 2)(4x^3 - 2x^2 + x + 2) \\
& (3x^3 + 4x^2 + 4x - 3)(3x^3 - 4x^2 + 3x + 4) \\
& (x^3 + x^2 + 3x + 1)(3x^3 - 2x^2 + x + 4) \\
& (x^3 + 3x^2 + 2x - 4)(4x^3 - 5x - 4) \\
& (4x^3 - 5x + 4)(x^3 + 5x^2 + 4x - 2) \\
& (3x^3 - 5x^2 - 3x + 4)(5x^3 - 3x + 3) \\
& (4x^3 - 4x^2 - 5x + 1)(5x^3 - 5x^2 + 4x - 1) \\
& (4x^3 + 5x^2 + 3x - 3)(4x^3 + 2x^2 + 5x + 2) \\
& (2x^3 - x^2 + 4)(3x^3 - 3x^2 - 5x - 5)
\end{aligned}$$

$$\begin{aligned}
& (5x^3 + 4x + 5)(2x^3 + 3x^2 + 5x - 3) \\
& (x^3 - 5x^2 + 4x + 3)(3x^3 - x^2 - x + 1) \\
& (4x^3 + 3x^2 + x + 3)(5x^3 + x^2 - x - 3) \\
& (2x^3 + 4x^2 + 3x - 5)(2x^3 + 4x^2 + x + 4) \\
& (5x^3 + 2x^2 + x + 5)(2x^3 - x^2 + 3x - 3) \\
& (2x^3 + x^2 - x - 4)(3x^3 - 4x - 3) \\
& (4x^3 - 2x^2 - 5x + 2)(2x^3 - x^2 - 3x - 2) \\
& (2x^3 - 3x^2 + 3x - 5)(4x^3 - 4x^2 + 4x - 5) \\
& (4x^3 + 5x^2 - 3x - 3)(5x^3 - x^2 - 2x + 1) \\
& (3x^3 + x^2 + 3)(5x^3 + x^2 - 3x - 2) \\
& (x^3 - 4x^2 + 3x - 1)(4x^3 - x^2 + x + 5) \\
& (3x^3 - 3x^2 - 5x + 3)(4x^3 + 2x^2 - x - 2) \\
& (3x^3 + x^2 + 3x - 3)(3x^3 + x^2 - 5x - 4) \\
& (5x^3 - 5x^2 - 1)(4x^3 - 2x^2 + 2x + 1) \\
& (5x^3 - 2x^2 + 2x + 1)(2x^3 + 5x^2 + 3x - 4) \\
& (5x^3 + 5x^2 + 5x + 1)(x^3 - 4x^2 + 2x - 4) \\
& (x^3 + 2x^2 - 5x - 2)(3x^3 - 3x^2 - 4x - 2) \\
& (5x^3 - 2x^2 + 2x - 3)(x^3 + 4x^2 - x - 1) \\
& (5x^3 + 5x^2 - 5x + 3)(2x^3 - x^2 + 4) \\
& (x^3 - 2x^2 + 3x + 1)(2x^3 + 3x^2 + 4x - 1) \\
& (2x^3 + 4x^2 + 5x + 4)(x^3 - 2x^2 + 4x + 2) \\
& (3x^3 - 3x^2 - 3x + 1)(5x^3 + 4x^2 - x - 3) \\
& (2x^3 - x^2 - x - 1)(4x^3 - 4x^2 - x - 1) \\
& (3x^3 - x^2 + 5x + 4)(4x^3 - 4x + 3) \\
& (x^3 + 4x - 2)(2x^3 - 5x^2 + 4x + 2) \\
& (3x^3 - x^2 - 2x + 4)(x^3 + 4x^2 - 5x + 5) \\
& (5x^3 + 3x^2 - 5x - 5)(2x^3 - 2x^2 + 3x - 4)
\end{aligned}$$

$$\begin{aligned}
& (4x^3 - 4x^2 + x + 1)(2x^3 + 3x^2 + 5x - 5) \\
& (3x^3 + 3x^2 + 5x - 1)(4x^3 - 2x^2 - x - 4) \\
& (4x^3 + 4x^2 + 4x + 5)(2x^3 - 5x^2 - 5x + 1) \\
& (5x^3 + x^2 + 3x - 4)(5x^3 + 4x^2 - 2x - 4) \\
& (4x^3 + x^2 - 5x - 5)(5x^3 + 3x^2 - 1) \\
& (x^3 - 3x^2 + 1)(3x^3 - 5) \\
& (5x^3 - 4x^2 - 2x - 3)(3x^3 + 4x^2 + 3x - 5) \\
& (3x^3 - x^2 + 3x - 2)(2x^3 - 3x^2 - 5x - 3) \\
& (4x^3 + x^2 - 3x + 1)(4x^3 + 2x^2 - 4x + 5) \\
& (3x^3 - 4x + 2)(2x^3 - 5x^2 - 5x - 5) \\
& (5x^3 + x^2 - 4)(x^3 + 4x - 1) \\
& (4x^3 + 5x^2 - 2x - 5)(x^3 + 4x^2 + 4x + 2) \\
& (5x^3 - 5x^2 - 4x + 3)(4x^3 + 4x^2 + 2x - 1) \\
& (3x^3 + 3x + 2)(x^3 + 3x^2 + 5x - 1) \\
& (3x^3 - x^2 + 3)(3x^3 - 3x^2 + 4x - 2) \\
& (x^3 + x^2 - 2x + 1)(2x^3 + 4x^2 - 5x + 4) \\
& (3x^3 + 4x^2 + 5x - 4)(2x^3 - 2x^2 + x + 4) \\
& (4x^3 - 5x^2 + x + 2)(5x^3 - 4x^2 + 2x + 5) \\
& (3x^3 + 5x - 4)(x^3 + x^2 - 4x + 3) \\
& (4x^3 + 4x^2 + 2x + 3)(2x^3 - 5x^2 - 4) \\
& (2x^3 - 5x^2 + 5x - 4)(3x^3 - 3x - 1) \\
& (2x^3 + 5x - 5)(3x^3 - 3x^2 + x - 2) \\
& (5x^3 + 2x^2 - x - 1)(x^3 - 5x^2 + x + 4) \\
& (x^3 - 3x^2 + 4x + 2)(5x^3 - x^2 + x - 1) \\
& (5x^3 - x^2 - x + 1)(x^3 + 5x - 4) \\
& (3x^3 + 3x^2 + 2)(5x^3 - 3x^2 - 2x - 5) \\
& (5x^3 + 5x^2 + 1)(x^3 + x^2 - x + 5)
\end{aligned}$$

8.5 일계수가 아닌 육차식 2형

$$\begin{aligned}
& (2x^2 - x - 5)(2x^2 + 4x + 3)(4x^2 + 5) \\
& (4x^2 + 3)(5x^2 - 2)(2x^2 - x + 2) \\
& (4x^2 - 4x - 1)(x^2 - 4x - 4)(2x^2 - 3x + 5) \\
& (4x^2 + x - 1)(x^2 - 5x + 2)(2x^2 - 2x - 3) \\
& (x^2 + x - 5)(x^2 + 2x + 5)(2x^2 - 4x + 5) \\
& (5x^2 - 4x + 1)(3x^2 + x - 5)(3x^2 - 5x - 1) \\
& (3x^2 - 4)(5x^2 + x - 1)(5x^2 + 4x - 4) \\
& (x^2 + 3)(2x^2 - 3x - 3)(2x^2 - 4x - 1) \\
& (3x^2 - 4x + 3)(x^2 - 5x + 3)(3x^2 + 3x - 1) \\
& (4x^2 + 5x - 1)(5x^2 - 2x + 4)(2x^2 + 3x + 4) \\
& (5x^2 - x + 3)(3x^2 - 4)(x^2 + 2x - 4) \\
& (4x^2 - 5x - 5)(3x^2 + 3x + 2)(3x^2 - 2x - 2) \\
& (3x^2 + 5x - 1)(2x^2 + 2x - 1)(x^2 + 1) \\
& (5x^2 + 2x + 1)(x^2 + 2x + 5)(x^2 + 5x - 4) \\
& (2x^2 + 2x + 1)(3x^2 - 4x + 3)(4x^2 - 5x - 1) \\
& (2x^2 - x - 4)(5x^2 + x - 1)(5x^2 + 2x - 5) \\
& (3x^2 + 4x + 5)(x^2 - 2x + 4)(5x^2 - 4x - 5)
\end{aligned}$$

$$\begin{aligned}
& (5x^2 + 3x - 5)(5x^2 - 4x - 5)(4x^2 + 5x + 4) \\
& (x^2 - 4x + 2)(4x^2 + 3x + 1)(3x^2 - x + 5) \\
& (x^2 + 3x - 3)(x^2 + 2x - 4)(5x^2 + 2x - 4) \\
& (x^2 - 2)(2x^2 - 5x - 5)(4x^2 + 3x + 1) \\
& (2x^2 - x + 1)(2x^2 - x + 2)(x^2 - x + 4) \\
& (3x^2 - 4x + 3)(4x^2 + 4x + 5)(5x^2 - 3x + 2) \\
& (2x^2 + 4x - 5)(2x^2 + 5x + 4)(2x^2 + 2x - 3) \\
& (x^2 - x + 5)(4x^2 - 2x + 3)(x^2 + 3x - 3) \\
& (5x^2 + x + 4)(5x^2 + 4x + 4)(2x^2 + 2x + 3) \\
& (5x^2 - 2x + 5)(4x^2 + 4x - 5)(2x^2 - 5x - 5) \\
& (x^2 - 2)(5x^2 + 4x - 2)(3x^2 + x + 2) \\
& (x^2 + 1)(5x^2 + x - 3)(3x^2 + 2x + 5) \\
& (x^2 - 3x + 4)(5x^2 + 4x - 3)(4x^2 + 4x - 5) \\
& (4x^2 + x - 4)(x^2 + 4x + 5)(2x^2 - 4x + 5) \\
& (x^2 - x - 1)(2x^2 + 4x - 1)(5x^2 - x + 4) \\
& (4x^2 - x - 1)(3x^2 + 4x - 3)(x^2 - 3x - 5) \\
& (5x^2 + 5x + 4)(2x^2 + 4x + 5)(x^2 + x + 1)
\end{aligned}$$

$$\begin{aligned}
& (2x^2 - 5x - 4)(5x^2 + x + 3)(3x^2 - 4x - 2) \\
& (3x^2 + 3x + 1)(5x^2 + 4x + 4)(5x^2 + x - 2) \\
& (2x^2 + 5x + 5)(x^2 - 4x - 4)(2x^2 + x - 2) \\
& (2x^2 + 3x + 2)(4x^2 + x - 4)(3x^2 + 4x - 3) \\
& (x^2 + 4x - 3)(x^2 - 5x + 1)(5x^2 + x - 2) \\
& (2x^2 - x + 2)(x^2 + 3x + 5)(x^2 - 5x + 2) \\
& (2x^2 - 5x - 5)(5x^2 + 4x + 2)(2x^2 - x - 4) \\
& (3x^2 + 3x + 4)(3x^2 + 5x + 5)(5x^2 - 5x - 2) \\
& (5x^2 + 2)(5x^2 - 5x - 2)(5x^2 + 5x - 1) \\
& (x^2 - x - 5)(3x^2 - 5x + 4)(2x^2 + 5) \\
& (2x^2 - 3x + 4)(x^2 - 2x + 4)(2x^2 + 3x - 3) \\
& (5x^2 - x + 3)(5x^2 + 5x - 4)(4x^2 + x + 3) \\
& (x^2 - 3x + 5)(x^2 + x - 3)(2x^2 - x - 2) \\
& (5x^2 - x + 3)(5x^2 - 3x - 4)(5x^2 + 2x + 1) \\
& (5x^2 - 5x - 2)(5x^2 + 5x - 1)(4x^2 + 4x - 5) \\
& (5x^2 - 4x - 4)(x^2 + 4x - 3)(2x^2 + 3x - 1) \\
& (4x^2 + 3x + 4)(4x^2 + 3x - 4)(3x^2 - 1) \\
& (4x^2 - 3x - 3)(4x^2 - 5x - 2)(x^2 + 5x + 2) \\
& (3x^2 + x + 5)(x^2 + 3x - 3)(x^2 + x - 3) \\
& (4x^2 - 2x - 3)(3x^2 + 2x + 5)(4x^2 - 3x + 4) \\
& (2x^2 - 3x - 3)(4x^2 - 5x - 5)(x^2 - 3x + 3) \\
& (3x^2 - 4x - 2)(2x^2 + 5x - 4)(4x^2 + x + 2) \\
& (x^2 + 3x + 1)(4x^2 + 3x + 1)(x^2 + 4x + 5) \\
& (4x^2 + 5)(5x^2 + 5x + 1)(x^2 + 2x + 2) \\
& (2x^2 - x - 5)(3x^2 - 4x + 5)(2x^2 - x + 4) \\
& (2x^2 + 4x + 3)(x^2 + x - 5)(x^2 - x + 1) \\
& (3x^2 + 2x + 1)(2x^2 + 1)(5x^2 + 4) \\
& (5x^2 - 4x + 3)(2x^2 + 4x + 5)(3x^2 + 5x - 4) \\
& (3x^2 - x + 2)(2x^2 - 1)(4x^2 + 3x + 4) \\
& (4x^2 - x + 2)(x^2 - 2x - 2)(x^2 - 5) \\
& (2x^2 + 3x + 3)(x^2 + 4x + 1)(x^2 + x + 2) \\
& (x^2 - x + 2)(3x^2 + 4x + 4)(4x^2 + 3x - 3) \\
& (4x^2 + 4x - 5)(x^2 - 4x - 2)(2x^2 - 2x + 5) \\
& (5x^2 + 2x + 2)(3x^2 - 4x + 5)(x^2 + x - 5) \\
& (5x^2 - 5x + 1)(5x^2 + 3x - 4)(3x^2 + 3x + 1) \\
& (4x^2 - 5x - 4)(4x^2 - 3x + 4)(x^2 + 4x - 1) \\
& (4x^2 + 3x + 5)(x^2 + 4x - 4)(3x^2 + 5x + 5) \\
& (4x^2 + x + 4)(x^2 - 5x - 5)(4x^2 - 2x + 5) \\
& (5x^2 - 5x + 4)(5x^2 - 5x + 2)(x^2 + x - 1) \\
& (4x^2 - 3x + 1)(2x^2 + x + 5)(2x^2 - x - 4) \\
& (x^2 + 2x + 2)(2x^2 + 4x - 1)(3x^2 - 2x + 2) \\
& (2x^2 - 4x + 1)(5x^2 + 3x - 4)(3x^2 - 3x - 1) \\
& (5x^2 - 4)(5x^2 - 1)(x^2 + x + 2)
\end{aligned}$$

$$\begin{aligned}
& (3x^2 + 2x + 1)(5x^2 - 2x - 1)(5x^2 - 4) \\
& (3x^2 + x + 1)(5x^2 - 2x + 3)(4x^2 + 5x + 3) \\
& (3x^2 - 4x - 2)(4x^2 + x - 4)(5x^2 + 3x + 5) \\
& (4x^2 - 4x - 5)(5x^2 - 2x + 1)(3x^2 - 3x - 1) \\
& (x^2 - 2x + 5)(3x^2 - 5x + 5)(4x^2 - 3x - 5) \\
& (2x^2 + x + 4)(2x^2 - 4x - 5)(3x^2 + x + 3) \\
& (4x^2 - 5x - 4)(2x^2 + 3x + 5)(5x^2 - 5x - 2) \\
& (x^2 + 5x - 1)(3x^2 + 4x - 3)(2x^2 + x - 4) \\
& (x^2 + x - 4)(4x^2 + 2x - 5)(3x^2 + 3x + 4) \\
& (x^2 + 5x + 5)(5x^2 - 5x + 1)(x^2 + x + 2) \\
& (x^2 + x + 3)(x^2 + 3x + 4)(2x^2 - 5x - 4) \\
& (2x^2 + x + 3)(3x^2 - 5x + 4)(x^2 + 3x - 2) \\
& (4x^2 - 2x + 1)(x^2 - 2x + 3)(2x^2 - 3x + 3) \\
& (5x^2 - 3x + 5)(2x^2 - 4x - 5)(5x^2 - 4x - 4) \\
& (5x^2 + 5x + 2)(5x^2 - 3x - 3)(2x^2 + x + 5) \\
& (5x^2 - 4x - 3)(5x^2 - 4x - 4)(4x^2 - 3x + 1) \\
& (2x^2 - 1)(5x^2 + 2x + 1)(2x^2 - 5) \\
& (x^2 - 3)(2x^2 + 5x + 1)(3x^2 + 2x + 4) \\
& (3x^2 - x - 5)(3x^2 - 4x + 4)(2x^2 - x + 4) \\
& (3x^2 - 4x + 4)(2x^2 - x - 4)(2x^2 - x - 2) \\
& (x^2 - 5x - 2)(2x^2 + 3x + 2)(5x^2 - 2x - 1) \\
& (4x^2 + 2x - 5)(5x^2 + 2)(4x^2 + 3x + 3) \\
& (4x^2 - x + 4)(3x^2 + 3x + 4)(x^2 - 4x - 1) \\
& (2x^2 + 5)(2x^2 + x - 5)(3x^2 - x + 3) \\
& (5x^2 - 2x - 5)(5x^2 + x + 5)(4x^2 + 2x - 5) \\
& (5x^2 + 3x + 2)(2x^2 - 3x - 3)(5x^2 - x - 2) \\
& (5x^2 - 5x - 1)(2x^2 - x + 2)(5x^2 + x + 1) \\
& (x^2 - 2x + 4)(x^2 + 4x - 4)(2x^2 + 4x + 3) \\
& (2x^2 + x + 3)(5x^2 - 3)(4x^2 - 3x + 1) \\
& (2x^2 + 2x + 5)(2x^2 + 2x + 3)(2x^2 - 2x + 3) \\
& (4x^2 - 3x - 5)(2x^2 + 5x - 4)(5x^2 + 3x + 3) \\
& (4x^2 - 5x + 4)(5x^2 - 5x + 2)(5x^2 + x + 3) \\
& (4x^2 + 5x - 1)(3x^2 - 3x - 4)(3x^2 - 2x + 3) \\
& (5x^2 - 2x - 1)(5x^2 - 1)(4x^2 + 5x - 3) \\
& (5x^2 + 3x - 3)(2x^2 - 4x - 5)(x^2 + 5x - 3) \\
& (4x^2 - 3x + 1)(3x^2 + 4)(x^2 + 5x - 4) \\
& (x^2 + 4x + 5)(x^2 + 4x + 2)(3x^2 + 2) \\
& (3x^2 + 2x + 4)(5x^2 - 4x + 3)(4x^2 - x + 4) \\
& (3x^2 + x - 1)(3x^2 + 2x - 2)(5x^2 - 3x + 4) \\
& (3x^2 + x + 5)(3x^2 - 3x + 1)(2x^2 - 5x + 4) \\
& (4x^2 + 3x + 4)(x^2 + 5x - 2)(3x^2 - 5x - 5) \\
& (2x^2 - x + 2)(x^2 + x + 3)(3x^2 - x - 5) \\
& (3x^2 - 1)(5x^2 - 5x + 3)(2x^2 - x - 2)
\end{aligned}$$

8.6 일계수가 아닌 육차식 3형

$$(x^2 + 4x + 1)(3x^4 + 4x^3 + 5x^2 + 4x - 1)$$

$$(4x^2 - 5x + 2)(2x^4 + 4x^3 - 5x^2 - 4x + 5)$$

$$\begin{aligned}
& (2x^2 - 5x - 4)(5x^4 - 2x^3 - 2x^2 - 5x + 1) \\
& (4x^2 + x - 1)(x^4 - 3x^3 - 4x^2 - 3x + 5) \\
& (4x^2 - 3x - 5)(5x^4 + 3x^3 + 3x^2 - 5x + 3) \\
& (x^2 - 3x - 1)(4x^4 - 4x^3 + 2x^2 + 4x - 1) \\
& (4x^2 - x + 2)(4x^4 - x^3 - 3x^2 - 2x + 5) \\
& (x^2 + 2x - 1)(3x^4 + 3x^3 + x^2 - x + 2) \\
& (5x^2 + 4x - 5)(5x^4 - 3x^3 + x^2 - 3x + 2) \\
& (x^2 + 2x + 2)(3x^4 - 4x^2 + 5x + 1) \\
& (4x^2 + 3x - 3)(4x^4 + 2x^2 - 4x + 1) \\
& (5x^2 - 3x + 4)(5x^4 - 5x^3 + 3x^2 + 3x + 2) \\
& (5x^2 - 4x + 3)(x^4 + x^3 + x^2 - 4x + 2) \\
& (x^2 - x - 5)(2x^4 - x^3 - x^2 + x + 2) \\
& (2x^2 + 3x - 3)(3x^4 - 4x^3 - 3x^2 + x + 5) \\
& (5x^2 - x + 5)(4x^4 + x^3 + 2x^2 + 4x - 2) \\
& (2x^2 - 3x - 1)(5x^4 - 2x^3 - 4x^2 - 3x + 2) \\
& (3x^2 + 4x - 3)(4x^4 + 5x^3 + 3x^2 + 3x + 5) \\
& (x^2 - 5x + 5)(5x^4 - 5x^2 + 4x + 3) \\
& (4x^2 + x - 4)(x^4 - 4x^3 - 4x^2 - 2x + 1) \\
& (2x^2 - x + 4)(3x^4 - 4x^3 + 4x^2 - 2x - 4) \\
& (4x^2 + 3x - 4)(x^4 - 4x^3 + 3x^2 + 5x - 4) \\
& (x^2 + 5x + 5)(3x^4 + 5x^2 - 4x - 1) \\
& (5x^2 - 2x + 3)(3x^4 - 2x^3 - 2x^2 + 4x + 2) \\
& (x^2 + 3x + 4)(5x^4 - 4x^3 + 5x^2 + x + 5) \\
& (3x^2 - 3x - 5)(3x^4 + 3x^3 + x^2 - 5x - 3) \\
& (3x^2 + 4x + 5)(5x^4 - x^3 + 2x^2 + 5x + 1) \\
& (5x^2 + x + 4)(x^4 + 3x^3 + 5x^2 + 5x + 4) \\
& (x^2 - 4x + 5)(3x^4 + x^3 - 4x^2 + 5) \\
& (5x^2 - 4x + 3)(x^4 - 5x^3 + 5x^2 + 5x - 2) \\
& (x^2 - 2x + 5)(3x^4 - 5x^3 - x^2 - 3x - 5) \\
& (2x^2 - 5x - 1)(x^4 + 2x^3 + 5x^2 - 5x - 4) \\
& (4x^2 + x + 2)(x^4 + x^3 - 2x^2 - 3x - 5) \\
& (3x^2 + 5x + 4)(5x^4 - 5x^3 - 2x^2 - x + 5) \\
& (x^2 + 3x + 1)(4x^4 + x - 1) \\
& (5x^2 - 3x - 4)(3x^4 + 2x^3 + x - 5) \\
& (3x^2 + 5x + 4)(x^4 - 4x^3 + x^2 + 5x + 5) \\
& (3x^2 + 3x - 1)(2x^4 - 3x^2 - 5x - 3) \\
& (5x^2 - x + 1)(4x^4 - 4x^3 + 2x^2 - x - 5) \\
& (5x^2 - 3x + 2)(3x^4 + 5x^3 + x^2 - 3x + 4) \\
& (x^2 + 2x - 4)(4x^4 - 3x^3 + 3x + 2) \\
& (2x^2 + 5x + 4)(2x^4 + 4x^3 - 2x^2 + 5) \\
& (3x^2 - 5x - 5)(x^4 - 5x^3 - 3x^2 + 3x + 2) \\
& (2x^2 + x - 5)(5x^4 + x^3 + 3x^2 + 5x + 1) \\
& (x^2 + x + 5)(3x^4 - x^3 - 4x^2 + 2x - 5) \\
& (x^2 - 3)(2x^4 + x^3 - x^2 - 2x + 5) \\
& (5x^2 - 4x - 5)(x^4 + x^3 - x^2 + 4x + 1) \\
& (5x^2 + x + 3)(3x^4 - 5x^3 - 4x^2 + 5x + 4) \\
& (2x^2 - x + 2)(3x^4 - 4x^3 - 5x - 4)
\end{aligned}$$

$$\begin{aligned}
& (x^2 - 2x + 2)(4x^4 + 3x^3 + 2x^2 + 3x + 5) \\
& (3x^2 + 4x - 2)(4x^4 - x^3 + 5x^2 - 5) \\
& (5x^2 - x + 2)(2x^4 + 3x^3 - 4x^2 + 2x - 2) \\
& (4x^2 + 2x + 5)(3x^4 - 5x^3 + 2x^2 - x - 4) \\
& (4x^2 + 5x + 4)(3x^4 - 3x^3 + 4x^2 + x - 3) \\
& (2x^2 - 5x + 5)(x^4 + 3x^3 + 2x^2 - 2x + 1) \\
& (3x^2 - 3x - 1)(2x^4 + x^3 + 5x^2 + x - 1) \\
& (4x^2 - 2x + 1)(5x^4 - x^3 + 3x^2 - 5x - 5) \\
& (3x^2 - 3x + 4)(5x^4 - 5x^3 + x^2 + 3x + 4) \\
& (5x^2 - 5x + 4)(x^4 + 2x^3 - 3x^2 + x + 2) \\
& (5x^2 + 5x + 2)(4x^4 - 5x^3 + 5x^2 - 3x + 3) \\
& (x^2 - x - 3)(2x^4 - 2x^3 + x^2 + x - 1) \\
& (x^2 + 2x + 3)(3x^4 + 4x^3 + 4x^2 + 5x + 1) \\
& (2x^2 - 2x + 1)(5x^4 + 5x^3 + 2x^2 + 5x - 2) \\
& (x^2 + 2x + 3)(4x^4 + 4x^3 - 2x^2 - x + 4) \\
& (5x^2 - 5x + 2)(2x^4 - x^3 + 2x^2 - 3x - 2) \\
& (2x^2 - 3x - 3)(4x^4 - 3x^3 - 3x^2 + 3x - 2) \\
& (4x^2 - 3x + 5)(5x^4 + 3x^3 - 3x^2 + x - 3) \\
& (3x^2 + 3x + 2)(5x^4 + 3x^3 + 4x^2 + 2x + 5) \\
& (5x^2 + 2)(x^4 - 2x^3 + 3x^2 + 3x - 1) \\
& (2x^2 - 2x + 3)(x^4 + 2x^3 - 2x^2 - 2x - 3) \\
& (3x^2 + 5x + 5)(4x^4 + 2x^3 + 2x^2 + 2x - 1) \\
& (2x^2 - 4x + 5)(5x^4 - 4x^3 - 3x^2 - 2x + 3) \\
& (4x^2 - 2x + 5)(4x^4 + 2x^3 + 5x^2 - 4x - 1) \\
& (4x^2 + x - 2)(5x^4 + 2x^3 + 2x^2 - 5x - 3) \\
& (5x^2 - 4x + 3)(2x^4 + x^3 - x^2 - 5x + 5) \\
& (x^2 + 3x + 5)(3x^4 + 3x^3 + 3x^2 + 4x - 3) \\
& (3x^2 + 4x - 5)(5x^4 + 4x^3 + 3x^2 + 2x + 2) \\
& (4x^2 - 4x + 3)(4x^4 - 2x^3 - 4x^2 - 5x - 5) \\
& (2x^2 - 4x + 3)(x^4 + 4x^3 + 5x^2 + 4x - 2) \\
& (2x^2 + 4x + 5)(3x^4 - 5x^3 - 4x - 5) \\
& (x^2 + 4x - 3)(4x^4 + x^3 - 4x + 4) \\
& (x^2 - 5x - 4)(5x^4 + 4x^3 - 3x^2 - 5x - 4) \\
& (5x^2 - 2x - 4)(x^4 - 4x^3 - 3x^2 - 4x - 5) \\
& (2x^2 - 5x - 4)(5x^4 + 5x^3 + 2x^2 - 5x + 4) \\
& (5x^2 - 5x + 4)(x^4 + 5x^3 + 5x^2 + x - 2) \\
& (x^2 - 3x + 3)(5x^4 + 3x^3 - 5x^2 + 3x + 3) \\
& (5x^2 - 2x - 2)(4x^4 + 2x^3 + 2x^2 - 2x - 3) \\
& (2x^2 - x + 5)(3x^4 - 2x^3 - 2x^2 + 4x - 2) \\
& (5x^2 + 5x - 1)(2x^4 - 3x^2 + 2x + 2) \\
& (5x^2 - 5x + 4)(4x^4 - 3x^3 - x^2 - 3x + 4) \\
& (4x^2 + 4x - 5)(4x^4 + 2x^3 + 5x^2 + 2x + 3) \\
& (5x^2 + x + 3)(3x^4 + 4x^3 - x^2 + 3) \\
& (2x^2 - 5x + 5)(4x^4 + 3x^3 - x^2 - 3x + 3) \\
& (4x^2 - 5x - 5)(x^4 - 4x^3 - 4x^2 + x - 3) \\
& (3x^2 - x - 5)(4x^4 - 2x^3 - 4x^2 - 4x - 5) \\
& (x^2 - 5x + 5)(4x^4 + 5x^3 - 5x^2 + 4x - 3)
\end{aligned}$$

$$\begin{aligned}
& (5x^2 - x + 5)(2x^4 + 4x^3 + 5x^2 - 5x - 2) \\
& (2x^2 - 4x + 3)(5x^4 + 4x^3 - 2x^2 + 5x - 3) \\
& (3x^2 - 3x + 1)(5x^4 - 4x^3 - 2x^2 - 2x - 2) \\
& \quad (x^2 + x + 2)(4x^4 + x^3 + 3x^2 - x - 3) \\
& \quad (2x^2 - 5)(x^4 - 2x^3 - 4x^2 - 5x - 3) \\
& (3x^2 + 2x - 3)(4x^4 - 4x^3 + 4x^2 - x + 5) \\
& (4x^2 - 5x + 3)(3x^4 + 2x^3 - x^2 + 2x - 2) \\
& \quad (3x^2 + 5x - 3)(x^4 - 3x^3 + x^2 + 5x + 1) \\
& (5x^2 + x + 1)(3x^4 + 2x^3 + 2x^2 + 4x - 4) \\
& (4x^2 + 3x + 4)(4x^4 - 2x^3 - 3x^2 - 4x - 5) \\
& \quad (x^2 + 2x + 4)(3x^4 + 4x^2 - 4x - 4) \\
& \quad (3x^2 - 5)(x^4 + 5x^3 - x^2 + 4x + 5)
\end{aligned}$$

$$\begin{aligned}
& (2x^2 - 3x + 3)(4x^4 + 3x^3 + 5x^2 - 5x - 3) \\
& \quad (5x^2 - 4x + 2)(x^4 + x^3 - x^2 - x - 3) \\
& (5x^2 + x + 4)(5x^4 + 3x^3 - x^2 + 4x - 4) \\
& (5x^2 - 3x + 4)(x^4 + 2x^3 + x^2 - 4x + 1) \\
& (4x^2 - 3x - 3)(4x^4 - 3x^3 - 5x^2 + 2x + 1) \\
& (2x^2 - 5x - 4)(4x^4 + x^3 + 4x^2 - x + 2) \\
& (5x^2 - 2x + 1)(3x^4 - 3x^3 + 4x^2 - 4x + 4) \\
& \quad (3x^2 - 4x - 5)(3x^4 + x^3 + 2x^2 - x + 2) \\
& \quad (2x^2 - 3x - 4)(5x^4 + 2x^3 - x^2 + 2) \\
& (2x^2 - 4x - 1)(x^4 - 5x^3 - x^2 + 3x - 5) \\
& (3x^2 - 4x - 3)(5x^4 - x^3 + 3x^2 - 3x + 5) \\
& (2x^2 + 5x - 4)(4x^4 - 4x^3 - 2x^2 + 4x - 1)
\end{aligned}$$

9. 칠차식의 인수분해

9.1 일계수 칠차식 1형

$$\begin{aligned}(x^2 + 3x + 1)(x^2 - 4x - 1)(x^3 + 4x^2 - 5x + 3) \\ (x^2 + 5x + 2)(x^2 + 5x + 2)(x^3 + 2x^2 + 5x + 5) \\ (x^2 - 5x + 1)(x^2 - 3x + 5)(x^3 + 2x^2 + 4x - 2) \\ (x^2 - 2x - 4)(x^2 - 4x - 4)(x^3 - 5x^2 - 5x - 1) \\ (x^2 - 2x - 4)(x^2 + 5)(x^3 - 2x^2 + 2x - 3) \\ (x^2 + 2x - 4)(x^2 + 1)(x^3 - 2x^2 + 2x - 3) \\ (x^2 + 4x - 2)(x^2 - 2x - 1)(x^3 - x^2 + 2x + 3) \\ (x^2 - 5x - 5)(x^2 + 3x + 4)(x^3 + 4) \\ (x^2 - x + 2)(x^2 + 4x + 2)(x^3 - 5x^2 + 2x + 4) \\ (x^2 + 3x + 3)(x^2 - 5x - 4)(x^3 - x^2 + 3x - 5) \\ (x^2 - x - 4)(x^2 - 2)(x^3 + 3x - 1) \\ (x^2 + x + 5)(x^2 + 2)(x^3 + 5x^2 + x - 1) \\ (x^2 + 2x + 5)(x^2 + x + 3)(x^3 - x^2 - 5x + 3) \\ (x^2 + 5x - 3)(x^2 - 3)(x^3 + 5x^2 + 2x + 3) \\ (x^2 + 3)(x^2 - 4x - 2)(x^3 - 4x^2 - x + 5) \\ (x^2 - 4x + 1)(x^2 + 4x + 2)(x^3 - 4x^2 + 4x - 2) \\ (x^2 - 2)(x^2 + 2x - 1)(x^3 + 5x^2 - 3x + 5) \\ (x^2 - 5x - 3)(x^2 + 5x + 3)(x^3 + 3x^2 - 5x + 5) \\ (x^2 + 5x - 4)(x^2 + 5x - 4)(x^3 - 2x^2 + 5x - 5) \\ (x^2 - 3x + 1)(x^2 - 2x + 2)(x^3 - 5x^2 - 3x + 5) \\ (x^2 + 3x + 4)(x^2 - 3x + 1)(x^3 - 3x^2 + 4x - 1) \\ (x^2 + 2x - 1)(x^2 - x + 4)(x^3 + 4x^2 + 3x + 2) \\ (x^2 + 3x + 3)(x^2 - x + 2)(x^3 - 3x + 1) \\ (x^2 - 3x - 2)(x^2 + 5x - 1)(x^3 - x^2 + 3x + 4) \\ (x^2 + 4x + 5)(x^2 + 3x - 2)(x^3 + x^2 - x - 2) \\ (x^2 + 3x + 3)(x^2 - 2x + 5)(x^3 + 4x^2 - 2x + 4) \\ (x^2 - 2x + 5)(x^2 - 5x + 3)(x^3 - x^2 - 5x - 5) \\ (x^2 - 5x - 5)(x^2 + 4x + 2)(x^3 + x^2 - 5x - 3) \\ (x^2 + x - 4)(x^2 + 2x + 3)(x^3 + 5x^2 - 2x - 5) \\ (x^2 + 3x + 5)(x^2 - x + 2)(x^3 - 2x + 5) \\ (x^2 + 2)(x^2 - 5x - 5)(x^3 - 4x^2 + 5x - 1) \\ (x^2 + 5x - 3)(x^2 - x + 2)(x^3 + 4x^2 + 3x - 3) \\ (x^2 + 4x - 4)(x^2 - 2x - 1)(x^3 - 2x^2 - x + 4) \\ (x^2 + x - 3)(x^2 + 3x + 4)(x^3 + 4)\end{aligned}$$

$$\begin{aligned}(x^2 + 3x - 5)(x^2 - 3x - 3)(x^3 - x^2 - x - 4) \\ (x^2 - 2x + 3)(x^2 + 5x + 3)(x^3 + 5x - 3) \\ (x^2 + x - 5)(x^2 - x + 1)(x^3 + 4x^2 + x + 2) \\ (x^2 + 5)(x^2 + 4x - 4)(x^3 + 3x^2 - 2x + 4) \\ (x^2 - 3x - 2)(x^2 + x - 4)(x^3 - 5x^2 + 3) \\ (x^2 - 2x - 4)(x^2 - x + 4)(x^3 - 5x^2 + 2x - 1) \\ (x^2 - 4x - 2)(x^2 - 2x + 5)(x^3 + 2x^2 + x + 4) \\ (x^2 + x + 2)(x^2 + 4x - 2)(x^3 - x^2 - 3x - 3) \\ (x^2 - 4x - 2)(x^2 + 3x + 4)(x^3 + 3x^2 - 3x + 5) \\ (x^2 - 2x + 5)(x^2 - x + 5)(x^3 + x^2 - 2x + 3) \\ (x^2 - x + 4)(x^2 + 4x + 5)(x^3 - 3x^2 - 2x - 1) \\ (x^2 + 3x + 5)(x^2 - x + 5)(x^3 + 4x^2 + 2x + 5) \\ (x^2 - 4x + 5)(x^2 - 5x - 4)(x^3 + x^2 - 5x + 5) \\ (x^2 + 4x + 2)(x^2 - x - 1)(x^3 - 2x + 2) \\ (x^2 + 5x - 3)(x^2 + 4x + 1)(x^3 - 3x^2 + 3x + 3) \\ (x^2 + 4x - 2)(x^2 - 3x + 3)(x^3 + 2x^2 + 2x - 4) \\ (x^2 + 3x + 1)(x^2 - 2x - 4)(x^3 - 2x^2 - 4x - 3) \\ (x^2 + x + 5)(x^2 - x + 1)(x^3 + 3x^2 + 3x + 3) \\ (x^2 - 4x + 2)(x^2 + 5x + 1)(x^3 - 3x^2 + 5x + 4) \\ (x^2 - 2x + 5)(x^2 + 5x - 3)(x^3 - x^2 + 4x - 5) \\ (x^2 - 4x + 2)(x^2 - 3x - 1)(x^3 + 3x^2 + 3x - 1) \\ (x^2 + 1)(x^2 + 3x - 5)(x^3 + 4x^2 + 1) \\ (x^2 + 5x - 5)(x^2 + x - 5)(x^3 + 2x - 1) \\ (x^2 + 1)(x^2 + 2x + 4)(x^3 + x^2 - 3x - 4) \\ (x^2 + 3)(x^2 - 4x - 4)(x^3 - x^2 + 3x + 2) \\ (x^2 - 3x + 3)(x^2 - 3x + 3)(x^3 + 5x^2 + 4x + 4) \\ (x^2 + 5x + 3)(x^2 - 2x + 3)(x^3 + x^2 + 5x - 4) \\ (x^2 - 3x + 1)(x^2 - 2x + 5)(x^3 + 2x^2 - 4) \\ (x^2 - 2x - 4)(x^2 + 5x - 1)(x^3 + 3x^2 + 5x - 3) \\ (x^2 + x + 3)(x^2 - 2x - 4)(x^3 + 3x^2 - 5x - 3) \\ (x^2 - 5x + 5)(x^2 + x - 4)(x^3 - 2x - 5) \\ (x^2 - 5x - 3)(x^2 - 4x - 2)(x^3 + 2x^2 - 5x - 1) \\ (x^2 - x - 5)(x^2 + 5x - 1)(x^3 + x + 4) \\ (x^2 + 3x - 2)(x^2 - 5x - 4)(x^3 - 3x^2 - x + 2)\end{aligned}$$

$$\begin{aligned}
& (x^2 + 3x - 1)(x^2 - 5x + 5)(x^3 + x^2 + 2) \\
& (x^2 + 5x - 3)(x^2 + 5x + 5)(x^3 - 3x^2 - 2x + 3) \\
& (x^2 + 3x - 2)(x^2 - 3x + 4)(x^3 - 4x - 2) \\
& (x^2 - x + 5)(x^2 + 4x + 2)(x^3 - x^2 + 5) \\
& (x^2 - x + 2)(x^2 + 4x - 1)(x^3 - 2x^2 + 3x + 4) \\
& (x^2 - 2x - 1)(x^2 + 2x - 2)(x^3 - 2x^2 + 3x - 1) \\
& (x^2 + 4x - 2)(x^2 + 5x + 3)(x^3 + 4x^2 + 3x + 5) \\
& (x^2 + 3)(x^2 + 2x - 1)(x^3 + 2x^2 + x - 3) \\
& (x^2 + 5x + 1)(x^2 + 5x + 2)(x^3 - 3x^2 - 5x + 2) \\
& (x^2 + x - 3)(x^2 - 5)(x^3 + 3x^2 - 3x - 2) \\
& (x^2 - 5x - 5)(x^2 - 5x - 2)(x^3 - 2x - 3) \\
& (x^2 + 4x + 5)(x^2 - 3)(x^3 + 4x^2 + 4x - 3) \\
& (x^2 - 2x - 1)(x^2 + x + 4)(x^3 - 2x^2 + 2x - 3) \\
& (x^2 - 5x + 2)(x^2 + 4x + 1)(x^3 - 4x^2 + 3x - 3) \\
& (x^2 + x + 3)(x^2 + 5x - 4)(x^3 + x - 1) \\
& (x^2 + 4x - 4)(x^2 + 4x - 2)(x^3 + x^2 - 4x - 1) \\
& (x^2 + 3)(x^2 + 4x + 2)(x^3 - 4x^2 - x - 5) \\
& (x^2 - x - 3)(x^2 + 4x - 2)(x^3 + 3x^2 + x - 4) \\
& (x^2 - 5x + 3)(x^2 + 1)(x^3 + 3x^2 + 5) \\
& (x^2 + 4x - 2)(x^2 + 5x - 4)(x^3 - 5x^2 - 2x - 5) \\
& (x^2 - x - 3)(x^2 + 3x + 1)(x^3 + x^2 + 4x + 5) \\
& (x^2 + 3x + 5)(x^2 + 3)(x^3 - 5x^2 + 2x + 4) \\
& (x^2 - 2x - 4)(x^2 - 5x + 1)(x^3 + 2x^2 + 1) \\
& (x^2 + 4x + 2)(x^2 + 2x + 3)(x^3 + 5x + 2) \\
& (x^2 - x + 4)(x^2 + 5x - 5)(x^3 - x^2 - 1) \\
& (x^2 + 2x + 5)(x^2 + 5x - 3)(x^3 + 4x^2 + 5x - 2)
\end{aligned}$$

$$\begin{aligned}
& (x^2 - 2x - 1)(x^2 - x + 3)(x^3 + 3x^2 - x + 3) \\
& (x^2 - 2x - 5)(x^2 + 3x - 3)(x^3 - 2x^2 + x + 3) \\
& (x^2 + 5x - 2)(x^2 + 4x - 4)(x^3 + 4x^2 - 4x + 2) \\
& (x^2 + 3x - 3)(x^2 + 4x - 3)(x^3 + 5x + 2) \\
& (x^2 + 3x - 5)(x^2 + 2x + 4)(x^3 - 4x^2 - 5) \\
& (x^2 - 4x + 1)(x^2 - 4x + 1)(x^3 + 3x^2 - x + 2) \\
& (x^2 + 5x - 3)(x^2 - 3x + 4)(x^3 - 4x^2 - 2x - 4) \\
& (x^2 - 5x - 4)(x^2 - x + 3)(x^3 + 2x^2 - 2x + 4) \\
& (x^2 + 3x + 4)(x^2 - 5x - 2)(x^3 + 3x^2 + 2x - 5) \\
& (x^2 + 4x - 1)(x^2 + 2x - 2)(x^3 - x^2 - 3x - 5) \\
& (x^2 + 5x + 2)(x^2 - 5x + 2)(x^3 + 4x^2 - 1) \\
& (x^2 - 5)(x^2 + 4x + 1)(x^3 + x + 4) \\
& (x^2 - 2x - 4)(x^2 - 3x + 3)(x^3 + x^2 - 2x + 3) \\
& (x^2 - 3x - 3)(x^2 - 2x + 4)(x^3 - 2x^2 + 5x + 3) \\
& (x^2 + x + 1)(x^2 - 5x - 3)(x^3 - x^2 + 2x - 5) \\
& (x^2 - 5x + 3)(x^2 - 5x + 5)(x^3 + 5x^2 + x + 1) \\
& (x^2 + x + 5)(x^2 - 4x - 3)(x^3 + 5x^2 + 2x + 5) \\
& (x^2 + x + 5)(x^2 + 5x + 3)(x^3 - 5x^2 - 5x + 2) \\
& (x^2 + 5x + 2)(x^2 - 3)(x^3 - 4x^2 + x - 1) \\
& (x^2 - 3x + 1)(x^2 - 3x - 1)(x^3 + x^2 - 2x - 5) \\
& (x^2 - 3x - 1)(x^2 + 4x + 2)(x^3 - 3x^2 - x + 4) \\
& (x^2 + x - 5)(x^2 + 3x - 3)(x^3 - 3x^2 + 3) \\
& (x^2 - 5x - 4)(x^2 - x + 5)(x^3 + x^2 + 4x + 5) \\
& (x^2 - 5x - 2)(x^2 - 4x + 2)(x^3 + 4x^2 - 2x + 4) \\
& (x^2 - 2x + 4)(x^2 + x - 5)(x^3 + 2x^2 + 3x + 5) \\
& (x^2 - x + 3)(x^2 - 5x - 5)(x^3 - 2x - 2)
\end{aligned}$$

9.2 일계수 칠차식 2형

$$\begin{aligned}
& (x^3 - 2x^2 - 3x - 5)(x^4 - 3x^3 + 5x - 5) \\
& (x^3 + 4x^2 + 1)(x^4 - 2x^3 - 2x^2 + 3x - 4) \\
& (x^3 + 5x^2 - 2x - 1)(x^4 + 4x^3 + 3x^2 + 5x + 4) \\
& (x^3 - 4x^2 + 2x - 1)(x^4 + 3x^3 + 3x^2 - 5x + 2) \\
& (x^3 + 2x^2 - 4x - 1)(x^4 + 3x^3 + 3x^2 + 4x - 2) \\
& (x^3 - 3x - 4)(x^4 - 2x^3 + 5x^2 - 5) \\
& (x^3 + 4x^2 + 2x + 5)(x^4 + 2x^3 - 3x^2 - 3x + 4) \\
& (x^3 + 4x + 1)(x^4 + 5x^3 - 5x^2 + 3x + 3) \\
& (x^3 - 5x^2 - 3x - 1)(x^4 - 4x^3 - 4x^2 - 3) \\
& (x^3 - 4x^2 + 2)(x^4 + x^3 - x^2 - 2x - 5) \\
& (x^3 + 4x^2 - 5x + 1)(x^4 - 4x^3 + 3x^2 - 4x + 2) \\
& (x^3 - 5x^2 + 3x - 1)(x^4 + 5x^2 + x + 4) \\
& (x^3 - 2x^2 + x - 5)(x^4 + 4x^3 - 2x^2 - 3x + 4) \\
& (x^3 - 4x^2 - 3)(x^4 - 3x^3 + 3x^2 + 2x - 4) \\
& (x^3 - 5x^2 - 5x + 5)(x^4 + 5x^3 - x^2 + 2x - 3) \\
& (x^3 + x^2 + 2x - 3)(x^4 - 4x^3 + 5) \\
& (x^3 + 2x^2 + 3x + 5)(x^4 + 5x^3 - 5x^2 + 3) \\
& (x^3 - 5x^2 - 2)(x^4 - 4x^3 - x^2 + 4x - 1)
\end{aligned}$$

$$\begin{aligned}
& (x^3 - 2x^2 + x - 4)(x^4 - 5x^3 + 4x^2 - 2x - 1) \\
& (x^3 - 4x^2 + x + 5)(x^4 - 2x^3 - x^2 - 3x + 2) \\
& (x^3 + x^2 - 2x + 4)(x^4 + 5x^3 + 2x^2 - 4) \\
& (x^3 - 4x^2 - 5x + 4)(x^4 + 2x^3 - 2x^2 - 5x - 3) \\
& (x^3 - 2x^2 - x + 4)(x^4 + x^3 - 3x^2 - 5x - 3) \\
& (x^3 - x^2 + 3x - 4)(x^4 - 2x^3 - x^2 - 2x + 3) \\
& (x^3 - 2x^2 - 5x - 1)(x^4 - x^3 + x^2 + 5) \\
& (x^3 + 4x^2 + 5x - 5)(x^4 - 3x^3 - 2x^2 - 5x + 1) \\
& (x^3 + 4x^2 - 2x + 2)(x^4 + 4x^3 + 3x^2 + x - 5) \\
& (x^3 - 2x^2 + 4x - 2)(x^4 + 3x^3 + x^2 + 3x - 5) \\
& (x^3 - x - 1)(x^4 - x^3 + 4x^2 + 5) \\
& (x^3 + 4x^2 + 3)(x^4 - 2x^3 - 4x^2 - 4x - 4) \\
& (x^3 + x^2 - 5x + 5)(x^4 + x^3 + 2x^2 - 4x + 1) \\
& (x^3 + 3x^2 + 2x - 4)(x^4 - 2x^3 - x^2 + x - 3) \\
& (x^3 + 5x^2 - 1)(x^4 - x^3 - 4x^2 + x + 2) \\
& (x^3 + 5x^2 - x + 5)(x^4 - 5x^3 + 2x^2 - 2x - 3) \\
& (x^3 - 2x^2 + 5x - 5)(x^4 - x^3 + 5x^2 - 4x + 4) \\
& (x^3 - 2x^2 + x + 2)(x^4 + 3x^2 + 5x + 3)
\end{aligned}$$

$$\begin{aligned}
& (x^3 - 4x^2 + 3x - 2)(x^4 - 4x^3 + 5x^2 + 2) \\
& (x^3 - 4x^2 - 2x - 5)(x^4 + x + 4) \\
& (x^3 + 3x^2 - 5)(x^4 - 2x^3 + 5x^2 - x - 1) \\
& (x^3 - 4x^2 - 4)(x^4 + 3x^3 - 4x^2 + 2x + 2) \\
& (x^3 + x^2 - 3)(x^4 + 5x^3 - x^2 + x + 4) \\
& (x^3 - 5x + 1)(x^4 + 4x^2 - 4x + 4) \\
& (x^3 - 5x^2 - 2x - 1)(x^4 - 3x^3 + 2x^2 - x - 2) \\
& (x^3 - 3x^2 - 3x + 4)(x^4 + 2x^3 - 2x^2 + 4x + 4) \\
& (x^3 + 3x - 2)(x^4 - x^3 - 3x^2 + x - 2) \\
& (x^3 + x^2 - x + 1)(x^4 + 5x^3 + x^2 + 5x - 5) \\
& (x^3 + 2)(x^4 - 5x^3 + x^2 - 3x + 3) \\
& (x^3 - 3x^2 - 2x - 2)(x^4 - 4x^2 - 4x + 1) \\
& (x^3 - 4x^2 - 4x - 2)(x^4 - 2x^3 + 2x^2 + 3x + 3) \\
& (x^3 - x + 1)(x^4 - 3x^3 - x^2 - 4) \\
& (x^3 + x^2 + 1)(x^4 + 4x^3 - 3x + 4) \\
& (x^3 + 5x^2 - 4x + 5)(x^4 - 3x^3 + 2x^2 - 5x - 4) \\
& (x^3 - 4x^2 - 5x + 1)(x^4 + 4x^3 + 3x^2 + 3x - 5) \\
& (x^3 + 5x^2 + 3x - 3)(x^4 - x^3 - x^2 - 4x - 3) \\
& (x^3 - 2x^2 + 4x + 3)(x^4 + 2x^3 - 5x^2 - 2x + 5) \\
& (x^3 - 3x^2 + 3)(x^4 + x^3 + 3x^2 - 5x + 5) \\
& (x^3 - x + 2)(x^4 - 4x^3 - 4x^2 - x + 4) \\
& (x^3 - 5x^2 - 5x - 3)(x^4 + 2x^3 + 2x^2 - 3x + 5) \\
& (x^3 - 4x^2 - x + 2)(x^4 + 5x^3 - 5x^2 - 4x - 5) \\
& (x^3 + 5x^2 - 4x - 3)(x^4 + 4x^3 - 2x^2 - 4) \\
& (x^3 - 3x + 1)(x^4 - 5x^3 - 3x^2 - x + 2) \\
& (x^3 - 3x^2 + 5x + 5)(x^4 - x^3 - 2x^2 + 5x - 4) \\
& (x^3 - 2x^2 - 2)(x^4 + x^3 - 5x^2 - x - 4) \\
& (x^3 + 4x^2 + 3x - 5)(x^4 - 5x^3 - 2x^2 - x + 5) \\
& (x^3 - 4x^2 + 3x - 5)(x^4 + x^3 - 3x^2 + 4x + 5) \\
& (x^3 + 4x + 3)(x^4 - x^3 - 5x^2 + 3x + 4) \\
& (x^3 + 5x^2 - x - 2)(x^4 - 4x^3 + 2x^2 + 5x + 5) \\
& (x^3 - x - 3)(x^4 - 2x^3 + 3x^2 + 4x - 3) \\
& (x^3 + x^2 + 2)(x^4 + 3x^3 + 4x^2 + 3x + 4) \\
& (x^3 - 5x^2 + 4x - 2)(x^4 + 4x^3 - 4x^2 - 4x - 3) \\
& (x^3 - 4x^2 + 3x - 1)(x^4 - 5x^3 + 4x^2 + 3x - 4) \\
& (x^3 + 2x^2 + 4x - 4)(x^4 - x^3 - x^2 + 4x + 1) \\
& (x^3 + 4x^2 - 5x + 2)(x^4 + 5x^3 + 2x^2 - 3x - 3) \\
& (x^3 + 5x^2 - 3)(x^4 + 4x^3 + x^2 - 4x - 1) \\
& (x^3 + 4x^2 + 5)(x^4 - 3x^3 + 5x + 4) \\
& (x^3 + 3x^2 + x - 4)(x^4 - 5x^3 + 5x^2 + 5) \\
& (x^3 - 5x^2 - x - 1)(x^4 + 4x^3 + 5x^2 - 2x + 1) \\
& (x^3 + 4x^2 - 5x + 3)(x^4 - 4x^2 - 2x + 3)
\end{aligned}$$

$$\begin{aligned}
& (x^3 + 4x^2 - x + 1)(x^4 + 5x^2 + 5x + 1) \\
& (x^3 - 5x^2 + 2x + 1)(x^4 + 3x^3 - 5x^2 - 5x + 5) \\
& (x^3 + 3x^2 - 3)(x^4 + x^3 + 5x^2 + x + 3) \\
& (x^3 + 5x^2 - 3x - 2)(x^4 - x^3 - 3x^2 + x - 2) \\
& (x^3 - x^2 + 3x + 1)(x^4 - 4x^3 + 5x^2 - 3x - 5) \\
& (x^3 + 4x^2 - 4x - 3)(x^4 + 3x^2 - 5x - 3) \\
& (x^3 + 4x^2 - 2x + 4)(x^4 + 4x^3 - 2x^2 + x + 5) \\
& (x^3 - x - 2)(x^4 - 3x^3 + x^2 + 5x + 1) \\
& (x^3 + 4x^2 - 2x - 2)(x^4 + 2x - 2) \\
& (x^3 - 4x^2 - 2x - 3)(x^4 + 4x^3 + 2x^2 + 5x + 4) \\
& (x^3 - 5x^2 + x + 2)(x^4 - 4x + 4) \\
& (x^3 + 2x^2 + 4x + 2)(x^4 - x^3 - 4x^2 - 3x - 3) \\
& (x^3 - 5x + 5)(x^4 + 3x^3 + 5x^2 + 2x + 2) \\
& (x^3 - 5x^2 + 2x + 5)(x^4 + 2x^3 + 4x^2 + 3) \\
& (x^3 - 3x - 5)(x^4 + x^3 - x^2 + 4) \\
& (x^3 + x^2 - x + 1)(x^4 + 2x^3 - x^2 - 2x - 4) \\
& (x^3 - x^2 - 4x + 3)(x^4 + 4x^3 - 2x^2 + 2) \\
& (x^3 - 5x^2 - x + 4)(x^4 + 4x^3 + x - 4) \\
& (x^3 - 5x^2 + 2x - 1)(x^4 + 3x^3 + 2x - 4) \\
& (x^3 + 5x^2 - 5x - 3)(x^4 + 4x^2 + 4x + 2) \\
& (x^3 - 3x - 1)(x^4 - x^3 + 4x^2 - 5x - 5) \\
& (x^3 + 4x^2 - x - 3)(x^4 + x^2 - 3x - 2) \\
& (x^3 - x^2 - 5x + 1)(x^4 - 2x^3 + x^2 - 3x - 3) \\
& (x^3 - 5x^2 + 4x - 5)(x^4 - x^3 - x - 1) \\
& (x^3 - 5x^2 - x - 1)(x^4 - x^2 - x + 3) \\
& (x^3 - x + 1)(x^4 - x^3 - 3x^2 - 2x - 5) \\
& (x^3 - 4x^2 + 1)(x^4 - 5x^3 + 3x^2 + 3x - 5) \\
& (x^3 - x^2 - x - 4)(x^4 - 4x^2 - 4x - 2) \\
& (x^3 + 5x^2 - 2x + 5)(x^4 - 4x^3 + 4x^2 + 3x - 3) \\
& (x^3 + 3x + 1)(x^4 - 2x^3 + 2x^2 - x - 2) \\
& (x^3 + 3x^2 + 5x - 1)(x^4 - 5x^3 - 2x^2 + 5x + 2) \\
& (x^3 - x - 2)(x^4 + 4x^3 + 3x^2 + 5x + 4) \\
& (x^3 + 2x^2 + 5x - 2)(x^4 - 3x^3 + 2x^2 + 3x + 2) \\
& (x^3 + x^2 - 5x + 4)(x^4 + 5x^3 + 4x^2 + 4x - 3) \\
& (x^3 + 2x^2 + 5x - 1)(x^4 - 5x^3 - 2x^2 + 4x + 4) \\
& (x^3 + 2x^2 + 5x - 2)(x^4 - 5x^3 - 3x^2 - 2x + 5) \\
& (x^3 - 4x + 4)(x^4 - x^3 + 2x^2 + 2x - 5) \\
& (x^3 + 3x^2 - x + 4)(x^4 - x^3 + 5x^2 - 2x - 1) \\
& (x^3 + 3x^2 + x + 1)(x^4 + 2x^3 - x^2 - 3x - 4) \\
& (x^3 + 3x^2 + 2x - 2)(x^4 - 4x^3 + 5x^2 + 3x - 3) \\
& (x^3 - x^2 - x + 2)(x^4 - 5x^3 + 5x^2 - 3x + 5) \\
& (x^3 + 2x - 5)(x^4 + x^3 + x^2 + 2x - 3)
\end{aligned}$$

9.3 일계수 칠차식 3형

$$\begin{aligned}
& (x^2 - x - 4)(x^5 - 5x^4 + 5x^3 + 4x - 3) \\
& (x^2 + 5x - 1)(x^5 + 4x^4 - 3x^3 - 2x^2 + 2x + 2)
\end{aligned}$$

$$\begin{aligned}
& (x^2 - 2x - 4)(x^5 + 5x^4 - 2x^3 - 5x^2 - 5x - 2) \\
& (x^2 - 5x + 1)(x^5 - 2x^4 - 2x^3 + x^2 - x - 5)
\end{aligned}$$

$$\begin{aligned}
&(x^2 - 3x + 3)(x^5 + x^4 - 2x^3 - 5x^2 - 2x + 2) \\
&(x^2 - 2x + 5)(x^5 + 5x^4 - x^3 - 4x^2 + x - 5) \\
&(x^2 - 3x + 1)(x^5 - 2x^4 + x^2 + 5x + 3) \\
&(x^2 + 2x + 2)(x^5 - x^4 - 2x^3 - 3x^2 - 2x - 3) \\
&(x^2 - 2x - 1)(x^5 - 3x^4 - x^3 + 4x^2 - 4x - 4) \\
&(x^2 + 1)(x^5 + 3x^4 - 5x^3 - 5x^2 - 4x + 5) \\
&(x^2 + x + 5)(x^5 + 3x^4 - x^3 - 5x^2 - 5x - 5) \\
&(x^2 - 4x - 2)(x^5 + 4x^3 - 5x^2 - 3x + 1) \\
&(x^2 - 2x - 1)(x^5 + x^4 + 5x^3 + x^2 + 2x + 4) \\
&(x^2 + 5x + 2)(x^5 + x^3 - 3x^2 + x + 2) \\
&(x^2 - x - 5)(x^5 + 5x^4 + 4x^3 - 2x^2 + 5x - 4) \\
&(x^2 + 5)(x^5 + 5x^4 + 4x^3 - x^2 + 4) \\
&(x^2 - 4x - 3)(x^5 - x^4 + 3x^3 - 3x^2 - 5x - 1) \\
&(x^2 + 3x - 5)(x^5 - 2x^4 + 5x^3 - 5x^2 - x + 4) \\
&(x^2 + 3x - 5)(x^5 - 4x^4 - 2x^3 + 4x^2 + 4x + 4) \\
&(x^2 - x - 5)(x^5 - 3x^4 - 4x^3 + x^2 - x - 1) \\
&(x^2 + 5)(x^5 - 5x^4 + x^3 - 2x^2 + 2x + 1) \\
&(x^2 + 4x + 1)(x^5 + x^4 - 3x^3 - 2x^2 - 2x + 1) \\
&(x^2 + 4x - 3)(x^5 + 2x^4 + x^3 + 3x^2 + 5x + 4) \\
&(x^2 + 3x + 3)(x^5 - 4x^4 + x^3 - 3x - 5) \\
&(x^2 - 5)(x^5 + 4x^4 + 2x^3 - 5x - 3) \\
&(x^2 - x + 4)(x^5 + 5x^4 - 3x^2 - 5x + 1) \\
&(x^2 + 1)(x^5 + 5x^4 + 4x^3 + x^2 - 4x - 1) \\
&(x^2 - 4x + 2)(x^5 - x^2 + 5x + 4) \\
&(x^2 - 5x + 3)(x^5 - x^4 + 5x^3 - 2x^2 + 2x + 1) \\
&(x^2 + x + 5)(x^5 - 2x^4 - 4x^3 - x^2 - 5x + 2) \\
&(x^2 + 2x - 5)(x^5 - 5x^4 - x^3 - x^2 + 4x - 1) \\
&(x^2 + 5x + 3)(x^5 + 4x^4 - 2x^3 - 3x^2 - 1) \\
&(x^2 + 3x + 4)(x^5 + x^4 - x^3 - x^2 - 2x + 5) \\
&(x^2 - 2x + 5)(x^5 + 4x^4 + 5x^3 + 5x^2 - x - 2) \\
&(x^2 + 5x + 2)(x^5 - 2x^4 + x^2 - 5x + 3) \\
&(x^2 + 5x + 5)(x^5 + 4x^4 - 5x^3 + 3x^2 - x - 4) \\
&(x^2 - 5x + 1)(x^5 + 2x^4 - 2x^3 - 3x^2 + 4x - 1) \\
&(x^2 - 3)(x^5 - 4x^4 - 3x^3 - 5x^2 - x - 4) \\
&(x^2 - 2x + 4)(x^5 - 4x^4 + 3x^3 + x^2 + 4x + 5) \\
&(x^2 - 3x - 1)(x^5 + x^4 + x^3 + 2x^2 + 4x + 2) \\
&(x^2 + 4x + 5)(x^5 - 2x^4 + x + 2) \\
&(x^2 - x + 3)(x^5 - 2x^4 + 5x^3 - 3x^2 + x + 3) \\
&(x^2 - 2x - 4)(x^5 - 2x^4 - 5x^3 + x^2 - 2x + 1) \\
&(x^2 + 3)(x^5 - 3x^4 + 2x^3 + 4x^2 - 3x + 3) \\
&(x^2 - 5x + 5)(x^5 + 4x^4 - 3x^3 - 4x^2 + 5x + 4) \\
&(x^2 + 5x - 3)(x^5 + 4x^4 - 2x^3 + 4x - 4) \\
&(x^2 + 5x + 5)(x^5 - 2x^4 - 5x^3 + 4x^2 - 4x - 4) \\
&(x^2 + x - 4)(x^5 + 2x^4 + 4x^3 + 3x^2 - 4x - 5) \\
&(x^2 + 5x - 4)(x^5 + 4x^4 - 2x^3 + 4x^2 - 4x + 3) \\
&(x^2 + x + 1)(x^5 + 4x^4 - x^3 + 2x^2 - 3x - 4) \\
&(x^2 - 4x - 1)(x^5 - 3x^4 + x^3 + 2x^2 - 3x + 4)
\end{aligned}$$

$$\begin{aligned}
&(x^2 + 4x - 1)(x^5 + 5x^4 + x^3 + 2x + 3) \\
&(x^2 + 3x + 5)(x^5 + 5x^4 + 4x^3 + 3x^2 + x - 4) \\
&(x^2 + x - 3)(x^5 - x^3 + 5x^2 + 4x + 1) \\
&(x^2 + 2x - 1)(x^5 - 3x^4 - x^2 - x + 5) \\
&(x^2 + 3x - 2)(x^5 + 2x^4 - 4x^3 - 4x^2 - 3x + 4) \\
&(x^2 + x - 5)(x^5 + 3x^4 + 5x^3 + 5x^2 + 5x + 1) \\
&(x^2 - 2x - 5)(x^5 - 2x^4 - 2x^3 + 2x^2 - x - 5) \\
&(x^2 + 2x + 4)(x^5 + 3x^4 - 5x^3 - 2x^2 - 4x + 4) \\
&(x^2 + x + 5)(x^5 - 5x^4 - x^3 - 4x^2 - 4x - 3) \\
&(x^2 - 5x + 5)(x^5 - 2x^4 + 4x^3 + 2x^2 - 4) \\
&(x^2 - 3x - 1)(x^5 - 4x^4 - 2x^3 + x^2 + 4x + 1) \\
&(x^2 + 2x - 1)(x^5 - 4x^4 + x^3 + 3x^2 - x - 1) \\
&(x^2 - x - 3)(x^5 + x^4 + 5x^3 - 3x + 3) \\
&(x^2 + 3x - 3)(x^5 - 3x^4 - 5x^2 - 2x - 2) \\
&(x^2 + x - 1)(x^5 + 5x^3 - 5x^2 + 4x + 5) \\
&(x^2 + 3x + 1)(x^5 + 5x^4 - x^3 - 4x^2 + 3x + 3) \\
&(x^2 + 3x + 3)(x^5 - 3x^4 + 4x^3 + 4x^2 + 2x - 4) \\
&(x^2 - 3x - 2)(x^5 - 3x^4 + 5x^3 + 1) \\
&(x^2 - 4x + 1)(x^5 + 5x^4 - 2x^3 - x^2 - 4x + 4) \\
&(x^2 + 5x - 3)(x^5 - 3x^4 - 3x^3 - x^2 - 4x - 1) \\
&(x^2 + x - 3)(x^5 - 3x^4 - 5x^3 + x^2 + 4) \\
&(x^2 - 5x - 2)(x^5 + 3x^4 + x^3 + 4x^2 + 2x - 5) \\
&(x^2 - 2x - 5)(x^5 + 5x^4 + 4x^3 - 4x^2 + 4x + 4) \\
&(x^2 - 3x + 4)(x^5 + 4x^4 - 5x^3 + 4x + 4) \\
&(x^2 - 2x - 4)(x^5 + 4x^4 - x^3 - x^2 + 2x + 5) \\
&(x^2 + 3)(x^5 - x^3 + 5x^2 + 4x - 4) \\
&(x^2 - 4x - 4)(x^5 - x^4 - x^3 - x^2 + x - 5) \\
&(x^2 + 5)(x^5 - x^4 - 2x^3 + x - 3) \\
&(x^2 - 2x - 4)(x^5 - 3x^4 - 3x^3 + 2x^2 - 3x - 5) \\
&(x^2 + x + 1)(x^5 + 2x^4 + 2x^3 - 5x^2 + 5x - 2) \\
&(x^2 + 3x - 2)(x^5 - 5x^4 + 3x^3 - x^2 - x + 5) \\
&(x^2 - 5x - 2)(x^5 + 4x^4 - x^3 - 4x^2 + 4x - 3) \\
&(x^2 - 5x - 4)(x^5 + 3x^4 + 4x^3 + 4x^2 + 3x + 3) \\
&(x^2 + 4x - 3)(x^5 - 2x^4 - 5x^3 - 4x^2 - 3x - 5) \\
&(x^2 + 4x - 3)(x^5 + x^4 + x^3 - 4x^2 - 3x + 5) \\
&(x^2 + x - 1)(x^5 - 4x^4 - x^3 + 2x^2 - 2x - 1) \\
&(x^2 + 3x - 5)(x^5 + 4x^4 + 5x^3 - 4x^2 + 4x + 3) \\
&(x^2 + x + 3)(x^5 - 3x^3 + x^2 - 5x + 1) \\
&(x^2 + 3x - 1)(x^5 + 4x^4 - x^3 - 4x^2 - 5x - 2) \\
&(x^2 - x - 4)(x^5 - 3x^4 - 3x^3 + 3x^2 - 5x + 2) \\
&(x^2 - 2x - 2)(x^5 - 5x^4 - 5x^2 + 3x + 1) \\
&(x^2 + x - 1)(x^5 - x^4 - 2x^3 - 4x^2 + 5x + 4) \\
&(x^2 + 3)(x^5 - 4x^4 + 2x^3 + 4x^2 - x + 1) \\
&(x^2 - 2x + 4)(x^5 + 5x^4 + 3x^3 - x^2 + 3x + 2) \\
&(x^2 - 3x + 3)(x^5 - x^4 + 5x^3 - x^2 + 2x + 1) \\
&(x^2 - 5x + 3)(x^5 + 3x^4 - 4x^3 + 4x^2 - 5) \\
&(x^2 - 5x + 2)(x^5 - 3x^4 - 5x^3 + x^2 + 3x + 5)
\end{aligned}$$

$$\begin{aligned}
& (x^2 + x + 1)(x^5 + 4x^4 - 3x^3 + 5x + 1) \\
& (x^2 - 3x + 1)(x^5 - 4x^4 + 2x^3 - 5) \\
& (x^2 + 4x - 1)(x^5 + 3x^4 - 5x^3 - x^2 - 5x - 1) \\
& (x^2 - 4x + 1)(x^5 - 5x^4 + 5x^3 + x^2 + x + 1) \\
& (x^2 - 2x - 1)(x^5 - 4x^4 - 3x^3 + 4x + 5) \\
& (x^2 + x - 3)(x^5 - 2x^4 - x^3 - 3x^2 + 2) \\
& (x^2 + x + 1)(x^5 + 2x^4 + 2x^3 + 3x^2 + 2x - 4) \\
& (x^2 - 3x - 5)(x^5 + 5x^4 + 5x^3 + 5x^2 + 3x - 2) \\
& (x^2 + 3x + 4)(x^5 - 2x^4 - 4x^3 + x^2 - x + 1) \\
& (x^2 - 3x + 3)(x^5 + 4x^4 + 2x^3 - x^2 + 4x + 1) \\
& (x^2 + 4x - 3)(x^5 + 5x^4 + 5x^3 - x^2 + 3x - 1)
\end{aligned}$$

$$\begin{aligned}
& (x^2 - 2x - 5)(x^5 + 4x^4 - x^3 - 4x^2 + x - 2) \\
& (x^2 + 4x + 1)(x^5 - 4x^4 + 3x^3 + x^2 - 5x - 4) \\
& (x^2 - 5x - 1)(x^5 + 2x^4 + x^3 - 4x + 2) \\
& (x^2 - 4x - 3)(x^5 + x^4 + x^3 + 2x^2 + x + 4) \\
& (x^2 - x + 4)(x^5 + 2x^4 + 2x^3 - 3x^2 - 4x - 3) \\
& (x^2 - 5x + 5)(x^5 + 2x^4 + 3x^3 + 5x^2 + 5) \\
& (x^2 - 5x + 1)(x^5 + 2x^4 + x^2 - 3x + 3) \\
& (x^2 + x - 5)(x^5 + 3x^4 + 3x^3 + 5x^2 - 5x - 5) \\
& (x^2 - 2x - 5)(x^5 + 3x^4 - x^2 - 4x - 2) \\
& (x^2 + 2x - 1)(x^5 + 3x^4 - x^3 + 2x^2 - 2x - 4) \\
& (x^2 - 3x + 5)(x^5 + 3x^4 + 2x^3 + 5x^2 + 3x + 5)
\end{aligned}$$

9.4 일계수가 아닌 칠차식 1형

$$\begin{aligned}
& (3x^2 + 5x + 5)(x^2 - 5x + 2)(4x^3 + 5x^2 - 4x - 1) \\
& (5x^2 + 3x + 4)(x^2 - 2x + 3)(5x^3 - 2x^2 + 3x - 5) \\
& (5x^2 - 2x + 1)(4x^2 + 3x + 4)(4x^3 + 5x^2 - 4x + 2) \\
& (4x^2 - 5)(3x^2 + 2x - 3)(x^3 - 3x^2 + x - 1) \\
& (x^2 + x - 5)(x^2 - 2x + 3)(4x^3 - x^2 - 5x - 2) \\
& (x^2 - x + 1)(5x^2 - 4x - 2)(5x^3 - 2x^2 - 5x - 3) \\
& (4x^2 + 5x + 2)(2x^2 + x + 5)(4x^3 + 2x^2 - 5x + 1) \\
& (5x^2 + 3x - 3)(2x^2 - 3)(5x^3 - 2x^2 + 4x + 3) \\
& (3x^2 - 2x - 4)(5x^2 - 4x - 3)(4x^3 - 3x^2 - 5x - 2) \\
& (5x^2 + 2x - 1)(2x^2 + 3x - 4)(x^3 + 3x^2 - x + 3) \\
& (4x^2 - 4x - 5)(x^2 + 3x - 1)(3x^3 + 4x^2 - 3x - 5) \\
& (5x^2 - 3x + 2)(x^2 + 5x + 5)(3x^3 + 3x^2 - 5x - 2) \\
& (3x^2 - 4x + 4)(x^2 - 5x - 1)(x^3 - 3x^2 - 3x - 5) \\
& (x^2 - 2x + 3)(5x^2 - x - 1)(3x^3 + x^2 - 3x + 5) \\
& (2x^2 + 2x + 1)(x^2 - x - 1)(3x^3 + 3x^2 - 2x + 1) \\
& (5x^2 - 5x + 2)(2x^2 - 1)(4x^3 + 4x^2 + 4x + 5) \\
& (5x^2 - x + 3)(2x^2 + 5x + 5)(4x^3 + 2x^2 - 3x - 5) \\
& (2x^2 + 4x + 1)(4x^2 + 5x + 3)(3x^3 + x^2 - x + 5) \\
& (x^2 - 2)(4x^2 - x + 2)(4x^3 + 5x^2 - 2x - 1) \\
& (5x^2 - 4x + 2)(3x^2 - 2x + 4)(3x^3 - 2x + 2) \\
& (2x^2 + 4x - 3)(x^2 - x - 1)(5x^3 + 4x^2 - 3x - 4) \\
& (2x^2 - 2x + 5)(x^2 + 4x + 1)(5x^3 - 2x^2 - x + 5) \\
& (x^2 + 5x + 1)(x^2 - 5x - 2)(5x^3 + x^2 - x - 1) \\
& (2x^2 - 2x - 1)(x^2 + 2x + 5)(3x^3 + 3x^2 + 4x - 3) \\
& (2x^2 - 1)(5x^2 + x + 4)(5x^3 - x^2 - 3x + 5) \\
& (x^2 + 2x - 2)(5x^2 + 3x + 2)(4x^3 - 3x^2 + 1) \\
& (3x^2 + 5x - 3)(5x^2 - 4x - 3)(4x^3 + 5x - 5) \\
& (3x^2 + 3x + 2)(3x^2 - 4x - 5)(4x^3 - 3x^2 - 4) \\
& (x^2 - x - 3)(5x^2 + 4x - 3)(2x^3 + 4x^2 - 2x - 3) \\
& (3x^2 - 4x - 5)(5x^2 - 4x + 2)(3x^3 + 3x - 5) \\
& (5x^2 - 2x + 4)(2x^2 + 3x + 3)(3x^3 + x^2 + 5x - 3) \\
& (2x^2 + 4x - 5)(4x^2 - x + 5)(4x^3 - 5x^2 + 5x + 3) \\
& (5x^2 + 3x + 4)(4x^2 + 3x - 3)(4x^3 + 3x^2 - 4x - 2)
\end{aligned}$$

$$\begin{aligned}
& (3x^2 - x - 5)(x^2 - 2x - 1)(5x^3 - 5x^2 - 3x + 5) \\
& (x^2 - 3x + 3)(x^2 + 5x + 2)(2x^3 + 2x^2 - 3x - 5) \\
& (x^2 - x - 4)(4x^2 - 3x - 5)(2x^3 - 4x^2 + x - 3) \\
& (3x^2 + 4x + 4)(2x^2 + x - 5)(5x^3 - x^2 - 5x - 3) \\
& (2x^2 - 5)(4x^2 - 3x + 5)(4x^3 + 5x^2 - 4x - 1) \\
& (5x^2 - 5x - 2)(x^2 + 4)(4x^3 - x^2 + 2) \\
& (4x^2 - 3x - 2)(3x^2 - x + 5)(2x^3 - 4x^2 - 3x - 5) \\
& (5x^2 + 2x + 5)(3x^2 + 1)(x^3 - 4x^2 - 4x + 3) \\
& (x^2 - x - 5)(4x^2 + 5)(4x^3 + 4x^2 - x + 1) \\
& (5x^2 - x - 2)(5x^2 - 1)(4x^3 - 4x^2 - 5x + 1) \\
& (3x^2 - 1)(5x^2 + 5x + 1)(4x^3 - 4x^2 + 5x - 4) \\
& (5x^2 + 5x + 2)(5x^2 + 2x + 2)(x^3 - 3x^2 + 2x + 4) \\
& (2x^2 - 4x - 1)(2x^2 - 3x + 2)(2x^3 - 4x^2 + 3) \\
& (x^2 - 3x + 1)(2x^2 - 4x + 3)(x^3 - 5x^2 - 4x - 5) \\
& (5x^2 - 5x + 3)(x^2 - x + 5)(4x^3 + 3x + 5) \\
& (4x^2 + 5x - 2)(2x^2 + 4x + 5)(x^3 - 3x^2 + 3x + 4) \\
& (4x^2 - 5x - 2)(x^2 + 5x + 1)(5x^3 - 3x^2 + x - 1) \\
& (5x^2 - 4x + 3)(5x^2 + 4x - 4)(5x^3 - x^2 - 5x - 3) \\
& (5x^2 + 3x + 4)(4x^2 + 3)(2x^3 + 5x^2 - 3x + 5) \\
& (4x^2 - x - 4)(2x^2 + 5x - 5)(2x^3 - 2x - 1) \\
& (5x^2 - 1)(3x^2 + 3x - 4)(4x^3 - 3x^2 + 3x + 3) \\
& (5x^2 + 2x + 2)(4x^2 - 2x + 5)(5x^3 - x^2 + 3x + 3) \\
& (x^2 - x - 1)(2x^2 + 3)(3x^3 - 4x^2 - x - 5) \\
& (4x^2 + 1)(x^2 - x - 3)(5x^3 + 4x^2 + 2x + 1) \\
& (x^2 - 2x - 2)(2x^2 - 5)(5x^3 + 5x^2 + 3) \\
& (x^2 + 2x + 2)(3x^2 + x + 5)(3x^3 + 2x^2 - 2x + 2) \\
& (2x^2 - 5)(x^2 - 3x + 1)(3x^3 - 4x^2 + 5x + 3) \\
& (4x^2 + 3x + 1)(3x^2 + 4x + 2)(5x^3 + 2x^2 + 3x + 5) \\
& (2x^2 - 3x - 4)(4x^2 + 1)(4x^3 - 3x^2 - 5x - 5) \\
& (x^2 + x - 1)(2x^2 + 3x + 4)(2x^3 - 3x^2 + 2x + 1) \\
& (3x^2 + x - 5)(x^2 + 4x - 2)(5x^3 + x^2 + x - 3) \\
& (4x^2 - 3)(3x^2 + 5x - 1)(5x^3 + 4x^2 + 4x + 3) \\
& (5x^2 - 5x - 2)(2x^2 - 5x - 4)(5x^3 - x^2 - x - 4)
\end{aligned}$$

$$\begin{aligned}
& (2x^2 + 3)(x^2 + 5x - 3)(3x^3 + 3x^2 - 3x + 2) \\
& (4x^2 + 5)(x^2 + 4x + 5)(5x^3 - 5x^2 + 1) \\
& (5x^2 + 5x + 4)(2x^2 + x - 4)(5x^3 - 4x^2 + 3x - 3) \\
& (2x^2 - x - 4)(x^2 - 3x - 1)(4x^3 - x^2 + 4) \\
& (x^2 + 4x - 3)(5x^2 + 3x - 5)(2x^3 - 5x^2 - 2x + 4) \\
& (x^2 + x + 3)(x^2 - x - 3)(5x^3 - 3x^2 - x - 2) \\
& (2x^2 + 4x + 3)(3x^2 - 3x - 2)(2x^3 + 2x^2 + 1) \\
& (5x^2 + 2x - 1)(x^2 + 2x - 4)(4x^3 - 4x^2 + 5x - 3) \\
& (3x^2 + 3x + 1)(x^2 - x - 1)(2x^3 - 4x^2 - 5x + 3) \\
& (x^2 - x + 4)(3x^2 + x + 3)(4x^3 - 5x^2 + 5x + 3) \\
& (5x^2 - 4x - 4)(x^2 - 3x + 1)(2x^3 + 5x^2 + 2) \\
& (x^2 - 2x - 1)(2x^2 - x - 2)(4x^3 + 2x^2 + 4x + 5) \\
& (3x^2 + x + 4)(2x^2 + 1)(4x^3 - 3x^2 + 5x - 1) \\
& (5x^2 + 2)(x^2 - x - 5)(2x^3 - 2x^2 - 3x - 3) \\
& (5x^2 - 5x - 4)(2x^2 - 3x + 3)(x^3 + 4x^2 - 2x + 2) \\
& (5x^2 + 3x - 1)(4x^2 - 2x + 1)(5x^3 + x^2 - 5x + 2) \\
& (x^2 + 3)(x^2 + 2)(3x^3 - 4x^2 - 4x - 5) \\
& (x^2 - 2x + 2)(4x^2 + 2x + 5)(4x^3 + x^2 + 3x + 4) \\
& (4x^2 + 4x + 5)(x^2 + x + 3)(4x^3 + 4x^2 + 2x - 3) \\
& (x^2 + 2x - 1)(3x^2 - 4x + 4)(x^3 + 2x - 2) \\
& (x^2 + 2x + 3)(3x^2 + 4x - 1)(4x^3 - 5x^2 + 2x + 3) \\
& (5x^2 + 5x - 4)(5x^2 - 4)(5x^3 + 1) \\
& (x^2 + 3x - 2)(2x^2 - x + 2)(2x^3 - x^2 - 5x - 3) \\
& (5x^2 - 2x + 4)(4x^2 + 3x + 4)(5x^3 - 2x^2 + x + 5) \\
& (x^2 - x - 4)(x^2 + 5x + 5)(2x^3 + 2x^2 + 3x - 1) \\
& (5x^2 + 5x + 2)(3x^2 - 2x - 4)(3x^3 - 2x^2 - x - 2) \\
& (x^2 - x + 2)(4x^2 - 3x + 1)(x^3 - 5x^2 - 2x - 1)
\end{aligned}$$

$$\begin{aligned}
& (3x^2 + 2x + 3)(5x^2 - 2x - 4)(2x^3 - 3x^2 + 3) \\
& (2x^2 + 3x - 1)(5x^2 + 5x + 3)(3x^3 + x^2 + 2x + 1) \\
& (x^2 + x + 5)(5x^2 + 4x + 2)(2x^3 + 4x^2 + 3) \\
& (x^2 + 5x - 4)(5x^2 - 4)(3x^3 - 2x^2 - 5x - 3) \\
& (4x^2 - 4x - 5)(x^2 + 4x - 1)(5x^3 + 5x + 1) \\
& (x^2 + 3x - 1)(4x^2 - 3x - 5)(5x^3 - 4x^2 - 4x - 5) \\
& (3x^2 + 3x - 2)(5x^2 + 3x + 2)(3x^3 - 4x^2 + 2x - 4) \\
& (2x^2 - x - 5)(3x^2 - x + 3)(x^3 - 4x^2 + 3x - 4) \\
& (3x^2 - 2x - 3)(3x^2 + 5x + 4)(3x^3 + x^2 + 5x + 3) \\
& (2x^2 + 2x - 3)(5x^2 - 4x + 2)(3x^3 - 5x^2 - 4x + 5) \\
& (3x^2 + 3x - 4)(2x^2 - 3x + 3)(4x^3 + 5x^2 + 4x + 1) \\
& (4x^2 + 2x - 1)(x^2 - 2x + 2)(2x^3 + 3x^2 + 5x - 1) \\
& (3x^2 + x - 5)(2x^2 + x + 1)(2x^3 + x^2 - 5x - 2) \\
& (3x^2 - 4x + 5)(4x^2 + 3x + 1)(3x^3 + x^2 - 2x + 3) \\
& (4x^2 + 4x - 5)(x^2 + x + 5)(x^3 + 2x^2 + 5x + 5) \\
& (2x^2 + 2x - 1)(5x^2 - 3x + 5)(x^3 - 3x^2 + 4x - 5) \\
& (5x^2 + x - 1)(3x^2 - 4x - 1)(5x^3 - 3x^2 + 4x - 1) \\
& (5x^2 + 2x - 5)(3x^2 + 4x - 2)(3x^3 - 5x^2 - 5x + 2) \\
& (3x^2 + 2x - 4)(x^2 - 4x - 4)(3x^3 - 5x^2 + 3x + 5) \\
& (3x^2 + 3x + 1)(5x^2 - 4x + 2)(3x^3 + x^2 + 2x - 2) \\
& (5x^2 - 3x - 5)(x^2 + 4x - 1)(2x^3 + 3x^2 + 5) \\
& (4x^2 - 2x - 1)(5x^2 + 4x + 1)(4x^3 - 3x^2 - 4x + 4) \\
& (2x^2 + x - 5)(4x^2 - 3x - 5)(4x^3 + 3x^2 - 2x - 4) \\
& (2x^2 - 4x + 5)(5x^2 - 3x - 1)(x^3 - 2x^2 + 3x - 5) \\
& (3x^2 + 4x - 5)(5x^2 + 3x + 1)(x^3 + 3x^2 + 1) \\
& (5x^2 + 2x - 5)(5x^2 - 5x + 1)(2x^3 + x^2 + x + 5) \\
& (5x^2 + 1)(x^2 + 3x + 3)(3x^3 + 4x^2 - 5x + 2)
\end{aligned}$$

9.5 일계수가 아닌 칠차식 2형

$$\begin{aligned}
& (5x^3 - 2x^2 + 5x + 4)(x^4 - 3x^3 + 5x^2 - x + 1) \\
& (2x^3 + 4x^2 - 5x + 2)(x^4 - 2x^3 - 5x^2 + x - 5) \\
& (4x^3 - 3x^2 + 2x - 1)(5x^4 + 4x^3 + 2x^2 - 2x + 5) \\
& (5x^3 + 2x^2 + 2x + 4)(x^4 - x^3 + 3x^2 + 5x + 4) \\
& (2x^3 - 2x^2 - 3x - 3)(3x^4 + x^3 + 3x^2 - 3x + 2) \\
& (5x^3 - 3x^2 + 5x + 4)(4x^4 + 3x^3 + x^2 + 5x + 4) \\
& (4x^3 - 4x^2 + 5x - 1)(3x^4 - x^3 - 4x^2 + x + 3) \\
& (3x^3 + 4x^2 - x - 5)(x^4 - 5x^3 + 4x^2 - 5x - 3) \\
& (2x^3 - 2x^2 - 1)(5x^4 + x^3 - 2x^2 + x + 1) \\
& (5x^3 - 5x^2 - 4x + 1)(5x^4 + 2x^2 + 1) \\
& (2x^3 + x^2 - x - 3)(4x^4 + 5x^3 - 2x^2 + x + 5) \\
& (x^3 + 2x - 4)(3x^4 + 3x^3 - 3x^2 + 2x - 4) \\
& (4x^3 + 3x^2 + x - 1)(2x^4 + 5x^3 + 5x^2 + 3x + 2) \\
& (5x^3 + x^2 + 3x + 5)(x^4 - 5x^3 - 4x^2 - 5x - 5) \\
& (2x^3 - x^2 + 3x + 4)(5x^4 + 3x^3 - 5x^2 - 2x - 2) \\
& (4x^3 + x^2 - 4x + 5)(5x^4 - 3x^3 + 5x^2 + x - 4) \\
& (x^3 + x^2 - x + 5)(4x^4 + 3x^3 - x^2 - 2x + 5)
\end{aligned}$$

$$\begin{aligned}
& (2x^3 - 4x^2 + 3x + 3)(x^4 + 5x^3 - 4x + 4) \\
& (2x^3 + 3x^2 - 3x + 1)(4x^4 - 2x^3 + 4x^2 + 5x - 1) \\
& (5x^3 + 3x - 4)(4x^4 - 2x^3 + 2x^2 + x + 3) \\
& (3x^3 + 4x^2 - 5x - 3)(5x^4 + 4x^3 - 2x^2 + 2x + 2) \\
& (4x^3 + 3x - 3)(5x^4 + 4x^3 + 3x^2 + 4x - 4) \\
& (x^3 - x^2 + 3x - 2)(4x^4 + x^3 - 3x^2 + 3x - 3) \\
& (5x^3 - 4x^2 - 3x + 1)(x^4 + 4x^3 - 5x - 4) \\
& (3x^3 + 5x^2 + x + 1)(4x^4 + 5x^3 + x^2 - 3x - 1) \\
& (2x^3 - 4x^2 - 3x - 4)(x^4 - x^3 - 2x^2 - x - 4) \\
& (2x^3 + 3x + 3)(4x^4 - 3x^3 + 5x^2 + 3x - 1) \\
& (4x^3 - 4x^2 - 4x + 5)(3x^4 - 3x^3 + x^2 - x + 2) \\
& (3x^3 - 2x^2 + 5x - 5)(5x^4 - 5x^3 + 5x^2 - 3x - 5) \\
& (4x^3 - 5x^2 + x - 1)(3x^4 + 2x^2 + 2x - 5) \\
& (4x^3 + x^2 + 5x + 3)(5x^4 - 2x^3 + 3x^2 + 5x + 2) \\
& (3x^3 - 4x^2 - 2x - 5)(4x^4 + 2x^3 - 2x^2 + 4x - 1) \\
& (5x^3 - 4x^2 + 1)(4x^4 - x^3 + 3x^2 + 4) \\
& (4x^3 + 2x^2 + 2x - 5)(2x^4 - 5x^3 - 5x^2 + 2x + 2)
\end{aligned}$$

$$\begin{aligned}
& (3x^3 - 2x^2 + 3)(5x^4 - 3x^3 + 3x^2 - 5x + 3) \\
& (2x^3 - 3x^2 + 5x + 2)(5x^4 - 4x^3 + 2x^2 + 4x - 1) \\
& (3x^3 - 5x^2 - 4x + 1)(4x^4 + x^2 - x + 1) \\
& (x^3 + x^2 + 2x + 5)(3x^4 + 3x^2 + x + 1) \\
& (x^3 - 4x^2 - x - 5)(2x^4 + 5x^3 + 4x^2 - 2x - 5) \\
& (4x^3 + 3x^2 - 2x + 1)(2x^4 + 3x^3 + 3x^2 + 2x + 4) \\
& (3x^3 + 2x^2 - 2)(4x^4 - x^3 + 3x + 1) \\
& (4x^3 + 2x^2 - 5x + 3)(5x^4 - x^3 + 3x + 4) \\
& (x^3 - 4x^2 - x - 5)(3x^4 + x^3 - 5x^2 - 3x + 2) \\
& (x^3 - 5x^2 - 5x + 5)(5x^4 + 4x^2 - 3x - 5) \\
& (3x^3 - 5x^2 - 2x - 5)(x^4 + 3x^3 + 2x^2 + 2x - 2) \\
& (2x^3 - 5x^2 + 3x - 1)(4x^4 + 5x^3 + 3x^2 + 2) \\
& (3x^3 - 2x^2 + x - 5)(2x^4 - 3x^3 + 5x^2 - x - 1) \\
& (2x^3 - 5x^2 + 5x - 4)(3x^4 + 2x^3 - x^2 + 2x + 1) \\
& (3x^3 + 4x - 1)(3x^4 - 5x^2 + 5x - 4) \\
& (x^3 + x^2 - 3x - 4)(3x^4 - 2x^3 + 3x^2 - 5x - 2) \\
& (3x^3 + 2x^2 - 4x - 2)(x^4 - 5x^3 + 3x^2 + 2x - 5) \\
& (3x^3 + x^2 + x + 4)(3x^4 + x^3 + x^2 + 3x + 3) \\
& (4x^3 - 4x^2 + 5x - 1)(5x^4 - x^3 + 4x^2 - 5x + 1) \\
& (3x^3 + 4x + 3)(5x^4 - 5x^3 - 3x^2 - x - 5) \\
& (4x^3 - 5x^2 + 3x + 5)(4x^4 - 5x^3 - x^2 - 5x + 1) \\
& (4x^3 - 4x^2 + 2x + 3)(2x^4 - 4x^3 + 4x^2 - 2x + 5) \\
& (4x^3 - 3x + 2)(4x^4 - 4x^3 - 4x^2 + x + 5) \\
& (2x^3 + x^2 - 2x - 5)(3x^4 + 2x^3 - x^2 - 5x - 4) \\
& (5x^3 + 4x^2 + x - 1)(x^4 - 5x^3 - 2x^2 + 2) \\
& (4x^3 - 4x^2 + x - 3)(x^4 - 2x^3 + 3x^2 + 5x - 2) \\
& (2x^3 + 4x + 3)(2x^4 - x^3 + 4x^2 - 2x - 2) \\
& (4x^3 + 5x - 4)(3x^4 + 3x^3 + 5x^2 + x + 3) \\
& (3x^3 + 2x^2 - 1)(5x^4 + 5x^3 - 4x^2 - x - 3) \\
& (5x^3 - 2x^2 - 4)(3x^4 - x^3 + x^2 + 3x - 5) \\
& (x^3 + 5x + 3)(3x^4 + 3x^3 - 2x^2 + 4x - 3) \\
& (x^3 + 4x^2 + 3x - 3)(3x^4 + 5x^2 - 3x - 4) \\
& (3x^3 - 2x^2 + 3x + 4)(4x^4 - x^3 - x^2 - 5x - 5) \\
& (x^3 - x^2 - 2x + 3)(5x^4 + 2x^3 - x - 3) \\
& (4x^3 + 3x^2 + 4x - 5)(3x^4 + 5x^3 + 5x^2 - 2x - 3) \\
& (4x^3 - 4x^2 + x - 2)(4x^4 + 4x^3 + x^2 + 2x + 5) \\
& (4x^3 + 3x^2 - x + 1)(x^4 - 2x^3 - 2x^2 + 3x - 2) \\
& (5x^3 + 5x^2 + 4x + 2)(5x^4 + 2x^3 - 3x^2 - 3x + 3) \\
& (2x^3 - 4x^2 + x + 2)(3x^4 + 3x^3 - 4x^2 - x + 5) \\
& (5x^3 + x^2 - 2x + 5)(2x^4 + 3x^3 + 2x^2 - 3x - 2) \\
& (5x^3 + 3x^2 + 4x + 5)(3x^4 + 2x^3 - 3x^2 - x - 3) \\
& (4x^3 + 3x^2 + 4x - 4)(3x^4 + 3x^3 - 2x^2 - 2x + 2) \\
& (2x^3 + 4x^2 - 4x - 1)(x^4 - 2x^3 + 5x^2 - x - 5)
\end{aligned}$$

$$\begin{aligned}
& (5x^3 + x^2 + 5)(3x^4 + x^3 - 2x^2 + x + 5) \\
& (4x^3 - 3x^2 + 3)(5x^4 + 2x^3 - 3x^2 - 3x + 4) \\
& (5x^3 - 5x^2 - 2)(5x^4 + 2x^3 - x^2 - 2x - 3) \\
& (4x^3 - 5x^2 + 3x - 3)(5x^4 - x^3 - 2x^2 - 2x + 3) \\
& (3x^3 - x^2 - x - 3)(4x^4 + 2x^3 + 3x^2 - 2x - 5) \\
& (3x^3 + x^2 + 4x + 4)(4x^4 + x^3 + 5x^2 - x - 2) \\
& (2x^3 - x^2 - 2x - 1)(4x^4 - x^3 - 5x^2 - 1) \\
& (3x^3 - x^2 - x + 4)(x^4 + 3x^3 - 4x^2 - x - 2) \\
& (2x^3 - 4x^2 + 5x + 3)(2x^4 + 4x^3 + 4x^2 + 3x + 2) \\
& (3x^3 + x + 2)(2x^4 + 3x^3 + x^2 - 5x + 3) \\
& (3x^3 - 3x^2 - 3x - 1)(x^4 + 2x^3 - 5x - 2) \\
& (4x^3 + 5x^2 - 5)(2x^4 + 3x^3 + 4x^2 - x + 5) \\
& (3x^3 - 4x^2 - 2x - 3)(5x^4 + 2x^3 + x^2 + 4) \\
& (2x^3 - 4x^2 + 5x - 4)(5x^4 + 2x^3 + 4x^2 + 5x + 5) \\
& (4x^3 - 2x^2 + 2x - 3)(4x^4 - 5x^3 - 3x^2 - 5x + 4) \\
& (2x^3 - x^2 - 3x + 4)(2x^4 - 5x^3 - 3x^2 + 5x - 3) \\
& (x^3 + x^2 + 5)(5x^4 + 2x^3 - 2x^2 + 3x - 1) \\
& (x^3 + 3x^2 - 2x + 2)(5x^4 - 3x^3 - 5x^2 + 3x - 2) \\
& (2x^3 - 4x^2 + x - 5)(4x^4 + x^3 - 2x^2 - x + 4) \\
& (2x^3 + x^2 - 5x + 4)(2x^4 - 3x^3 + 5x^2 + 4x + 5) \\
& (x^3 + 5x^2 - 3x - 5)(4x^4 - 2x^3 + 3x^2 - 3x + 5) \\
& (4x^3 - x^2 - 4x + 5)(4x^4 - 5x^3 - 4x^2 - x - 1) \\
& (5x^3 + 2x^2 - 1)(4x^4 - x^3 - x^2 - 5x - 3) \\
& (3x^3 + 4x^2 + 5)(3x^4 + 2x^3 + 4x^2 + x + 4) \\
& (4x^3 - 3x^2 - 5x - 4)(2x^4 + 3x^3 - 4x^2 + 2x - 2) \\
& (2x^3 - 5x^2 - 3x - 4)(x^4 + x^3 + 3x^2 - 2x + 2) \\
& (x^3 + 5x^2 - 3x - 1)(4x^4 - 3x^3 + 5x^2 + 2x - 4) \\
& (2x^3 - 5x^2 - 3x + 3)(4x^4 - x^3 - x^2 + 5x - 3) \\
& (2x^3 - x^2 + 4x + 5)(x^4 + 5x^3 + 5x^2 + 3x + 3) \\
& (2x^3 + 2x^2 - 4x + 1)(5x^4 - 4x^3 + 4x^2 + 5x + 4) \\
& (4x^3 - x^2 + 2x + 2)(3x^4 - 3x^3 - x^2 - 5x + 2) \\
& (3x^3 + x^2 - 5x + 3)(x^4 + 4x^3 + x^2 + x + 4) \\
& (3x^3 + 5x - 5)(3x^4 - 4x^3 - 2x - 1) \\
& (2x^3 - 4x^2 - 2x - 3)(2x^4 + 3x^2 - x + 5) \\
& (5x^3 - 5x^2 + 3x - 5)(5x^4 - x^2 - 4x + 4) \\
& (2x^3 + x^2 + x + 1)(x^4 + 3x^2 - 5x - 4) \\
& (5x^3 + 2x^2 - 4x - 5)(5x^4 + 5x^3 + 4x^2 + x + 3) \\
& (5x^3 + 5x^2 + x - 4)(2x^4 + 5x - 2) \\
& (4x^3 - 3x^2 - 4x - 1)(x^4 - 2x^3 + 4x^2 + 3x - 3) \\
& (2x^3 + 3x - 4)(5x^4 - x^3 - 4x^2 - 2x - 1) \\
& (2x^3 - 2x + 5)(4x^4 + 4x^3 - 4x^2 + 4x - 3) \\
& (x^3 - 3x^2 + 5x - 4)(5x^4 + 2x^3 - x^2 - 1) \\
& (2x^3 - x^2 - 4x + 4)(x^4 + 2x^3 + 4x^2 + 4x + 4)
\end{aligned}$$

9.6 일계수가 아닌 칠차식 3형

$$(2x^2 - 5x + 5)(3x^5 + 2x^4 - 4x^3 + x^2 - 2x - 5)$$

$$(5x^2 + 3x - 4)(5x^5 + 2x^4 - x^3 - 4x^2 + 2x + 1)$$

$$\begin{aligned}
& (4x^2 + 3x + 1)(5x^5 + 5x^4 - x^3 + 5x^2 + 4x + 5) \\
& (2x^2 + 3x + 4)(5x^5 + 4x^4 + x^3 + 4x^2 - 3x - 1) \\
& (3x^2 + 3x - 5)(2x^5 - 5x^4 - 4x^3 - 2x^2 + 4x + 1) \\
& (5x^2 + 3)(4x^5 + 5x^4 - 2x^2 - 5x + 2) \\
& (3x^2 + x + 5)(x^5 + 3x^4 - 3x^3 - x^2 + x + 2) \\
& (3x^2 - 4x + 4)(2x^5 + x^4 - 2x^3 - 4x^2 - 2x - 4) \\
& (x^2 - x + 3)(2x^5 - 4x^3 - 4x^2 - x - 3) \\
& (2x^2 - 5x + 5)(3x^5 - 2x^4 - 3x^3 - 4x^2 - x + 4) \\
& (x^2 - 5x + 5)(4x^5 - 4x^4 - 5x - 1) \\
& (x^2 + x + 3)(5x^5 - 3x^3 - 5x^2 + x - 2) \\
& (x^2 - 4x - 3)(5x^5 - 3x^4 + 3x^3 - 3x^2 + 4x - 5) \\
& (x^2 + 3x + 3)(4x^5 - x^4 + 4x^3 - x^2 - 4x - 4) \\
& (3x^2 - x + 1)(x^5 + 2x^4 - 2x^3 - 2x^2 + 5x - 2) \\
& (4x^2 - 2x - 3)(x^5 + 2x^3 + 3x^2 + 5x - 4) \\
& (5x^2 - 2x - 2)(x^5 + x^4 + 5x^3 - 4x^2 - 5) \\
& (x^2 + x + 3)(4x^5 - 2x^4 - 4x^3 + 3x^2 - 2x - 5) \\
& (x^2 - 5x + 2)(4x^5 - 4x^4 + 3x^3 - 4x^2 - 4x + 3) \\
& (2x^2 + 2x + 1)(x^5 - 2x^4 + x^3 + 3x^2 + 5x + 4) \\
& (3x^2 - x + 1)(5x^5 + x^4 - 2x^3 - 4x^2 + 4x - 1) \\
& (4x^2 - 4x - 1)(5x^5 + 5x^4 - 2x^3 - 2x^2 + x - 3) \\
& (x^2 - x - 3)(2x^5 + 4x^4 - 2x^3 - 4x^2 - 2x - 3) \\
& (x^2 + 5x - 1)(2x^5 - x^3 + 3x^2 - 3x + 4) \\
& (3x^2 - 3x + 4)(x^5 + 2x^4 + 2x^3 + 5x^2 - x + 5) \\
& (4x^2 - 4x + 5)(2x^5 - 2x^4 - 3x^3 - 3x + 4) \\
& (2x^2 + x + 5)(2x^5 + x^4 + 5x^3 + x^2 + 2x + 1) \\
& (3x^2 + 3x + 4)(5x^5 - 4x^4 + 2x^3 + 3x^2 - x - 4) \\
& (4x^2 - x - 1)(5x^5 + 2x^4 - 3x^3 - x^2 - 3x + 5) \\
& (4x^2 - 3x + 5)(2x^5 - 2x^4 + 4x^3 - 3x^2 + x - 4) \\
& (3x^2 + 1)(3x^5 - x^3 - 3x + 5) \\
& (3x^2 - 3x - 2)(2x^5 - x^4 - x^3 - x^2 - 3x + 1) \\
& (5x^2 - 5x - 4)(5x^5 - 5x^4 + 4x^2 - 4x - 1) \\
& (3x^2 - x - 3)(x^5 - 4x^4 - 5x^3 + 3x^2 - 5x - 4) \\
& (4x^2 + 5x - 4)(x^5 - 2x^4 + 2x^2 + 5x - 4) \\
& (3x^2 + 5x + 4)(4x^5 - 5x^4 - 5x^3 - 5x^2 + 5x - 3) \\
& (3x^2 - 3x + 1)(2x^5 + 4x^4 + 4x^3 - x^2 + 4x - 3) \\
& (5x^2 + 2x - 2)(x^5 - 2x^4 + x^3 + 2x^2 + 4x + 5) \\
& (x^2 - 5x + 5)(3x^5 + 2x^4 + x^3 + 2x + 5) \\
& (3x^2 + x + 1)(5x^5 - 4x^4 + 2x^3 + 5x^2 - 2x - 5) \\
& (x^2 - 5x - 1)(2x^5 - 3x^4 + 5x^3 + 4x^2 + x + 1) \\
& (4x^2 + 5x - 2)(2x^5 + 3x^4 + 5x^3 - 3x^2 - 2x + 2) \\
& (x^2 - 2x - 2)(5x^5 + 5x^4 + x^3 + 4x^2 - x - 2) \\
& (3x^2 - 2x - 3)(4x^5 + 3x^4 - 4x^3 - 5x^2 + 2x - 5) \\
& (4x^2 + x + 4)(4x^5 - 3x^4 + 5x^3 + 5x - 4) \\
& (5x^2 + 4x - 5)(5x^5 - 3x^4 + 5x^3 + 4x^2 - x + 2) \\
& (5x^2 + x + 1)(5x^5 + 5x^4 + 5x^3 + 3x^2 - 4x + 3) \\
& (5x^2 + 4x + 5)(2x^5 - 4x^4 + 4x^3 - x^2 - 4x - 4) \\
& (3x^2 - 5x + 1)(4x^5 - x^4 - 4x^3 + 2x^2 - 4x + 2)
\end{aligned}$$

$$\begin{aligned}
& (x^2 + 2)(2x^5 + 3x^4 - 2x^3 - 4x - 5) \\
& (2x^2 - 5x - 2)(2x^5 + 2x^4 + x^3 - 5x^2 - 2x - 5) \\
& (x^2 - x + 2)(2x^5 - x^4 + x^3 + 4x^2 + 5x + 2) \\
& (2x^2 + 5x + 5)(x^5 + x^4 - 2x^3 - 4x^2 - 4x - 5) \\
& (5x^2 - x - 1)(4x^5 + 3x^4 + 4x^3 - 2x^2 + 5x - 2) \\
& (5x^2 - 2x - 1)(5x^5 + 5x^4 - 5x^3 + 4x + 3) \\
& (3x^2 - 2x + 3)(5x^5 + 4x^4 - 3x^3 + x^2 + 3x + 5) \\
& (2x^2 + 1)(x^5 - 4x^4 + 2x^3 - 4x^2 - 5x + 4) \\
& (2x^2 + 3x + 4)(5x^5 - 4x^4 + 5x^3 - x^2 - x + 1) \\
& (2x^2 + 3x + 3)(2x^5 - 2x^4 + 4x^3 + 2x^2 + x - 2) \\
& (2x^2 - 3x - 4)(5x^5 - 4x^4 + x^3 + 5x^2 + 4x - 5) \\
& (4x^2 + x + 4)(3x^5 + 2x^4 - 2x^3 + 3x^2 + 3x - 3) \\
& (3x^2 - 2x + 2)(x^5 + 5x^4 - 4x^3 + 2x^2 - 3x - 4) \\
& (3x^2 + 4x + 4)(x^5 + 5x^4 - x^3 - 5x^2 - x - 3) \\
& (2x^2 + 3x - 1)(4x^5 - 3x^3 + 3x^2 + 3x + 4) \\
& (x^2 - 2x - 2)(5x^5 + 3x^4 + 4x^3 - 4x^2 + 3x - 2) \\
& (4x^2 + 4x + 3)(x^5 - x^3 - 5x^2 + 3x + 5) \\
& (x^2 - 2x + 5)(5x^5 + 5x^4 - 3x^3 + 4x^2 - 3x + 1) \\
& (2x^2 - 5x + 4)(4x^5 - 4x^4 + 3x^3 + 5x^2 - 2x + 1) \\
& (4x^2 - 3x + 2)(3x^5 + 3x^4 - 5x - 4) \\
& (5x^2 - x - 2)(5x^5 - 4x^4 + 5x^3 - 3x^2 - 3x + 5) \\
& (5x^2 - 2x - 4)(4x^5 + x^4 - x^2 - 2) \\
& (2x^2 - 2x - 5)(2x^5 - 5x^4 - x^3 - 2x^2 + 2) \\
& (4x^2 + 3)(3x^5 + 5x^4 - x^3 - x^2 - 5x - 4) \\
& (5x^2 + x + 3)(4x^5 - 2x^4 - 2x^3 + 3x^2 + 3x - 1) \\
& (x^2 + 2x + 4)(5x^5 - 2x^4 - 2x^3 - 5x - 4) \\
& (x^2 - 2x - 1)(3x^5 - 5x^4 - 5x^3 - 4x^2 - 2x - 3) \\
& (4x^2 - 5x + 2)(4x^5 - 3x^4 + 4x^3 + 4x^2 - x + 2) \\
& (5x^2 + x - 5)(4x^5 + 3x^4 - x^3 - 2x^2 + 5x - 2) \\
& (2x^2 - 1)(5x^5 - 5x^4 + 4x^3 - x^2 - 5x + 5) \\
& (x^2 + 4)(4x^5 - 5x^4 - 2x^2 - x + 3) \\
& (5x^2 - 5x + 3)(4x^5 + 4x^4 - 2x^3 - 3x^2 + x + 4) \\
& (5x^2 - 3x + 4)(4x^5 - 3x^4 + x^3 - x^2 + 3x + 2) \\
& (x^2 - 4x + 1)(5x^5 - 2x^4 + 3x^3 - 3x^2 - 3x - 2) \\
& (5x^2 + 3x + 2)(5x^5 - 2x^4 + 2x^3 - 3x^2 + 5x - 5) \\
& (x^2 - x - 1)(3x^5 - 3x^4 - 2x^3 - x^2 - 4x - 3) \\
& (3x^2 + 4)(2x^5 - 2x^4 + 4x^3 - 2x^2 + 5) \\
& (5x^2 + 3x - 4)(5x^5 + 2x^4 - x^3 - x^2 - 4x + 3) \\
& (2x^2 - 3)(x^5 + 5x^4 - 5x^3 - x^2 - 3x + 4) \\
& (3x^2 - 4x + 2)(x^5 - 2x^4 + 3x^3 + 2x^2 - 4x + 2) \\
& (5x^2 - 4x + 3)(3x^5 - 5x^4 + 2x^3 + 3x^2 - 1) \\
& (4x^2 - x - 4)(5x^5 + 3x^4 - 3x^3 - 2x^2 + 2) \\
& (2x^2 - 4x - 1)(x^5 + 3x^4 + 2x^3 + 4x^2 + 2x - 4) \\
& (3x^2 + 4x - 2)(2x^5 - 4x^4 + 3x^2 + 4x - 3) \\
& (5x^2 + 5x - 1)(4x^5 + x^4 - 2x^3 - 5x^2 - 5x - 4) \\
& (4x^2 + 3x - 4)(2x^5 + x^4 - 2x^3 + x^2 - 2x - 3) \\
& (2x^2 - x - 4)(5x^5 + 4x^4 + 2x^3 - x^2 - x + 4)
\end{aligned}$$

$$\begin{aligned}
& (2x^2 + x + 5)(3x^5 - 5x^4 + x^3 + x^2 - 3x - 5) \\
& (4x^2 - 4x - 5)(3x^5 - x^4 + 5x^3 - x - 2) \\
& (x^2 + 2x + 4)(3x^5 - 2x^3 - x^2 - 3x - 4) \\
& (2x^2 - 3)(5x^5 + 4x^4 - 3x^3 + 2x^2 + x + 5) \\
& (x^2 + 5x + 1)(4x^5 - x^4 + 3x^3 - 5x^2 - 5x + 2) \\
& (5x^2 - x - 2)(5x^5 + 3x^3 - 4x^2 + 5x + 4) \\
& (2x^2 + 4x + 5)(2x^5 + x^4 + 3x^3 - 4x^2 - 5x + 2) \\
& (5x^2 + 5x + 3)(5x^5 + 3x^4 + 3x^3 + 4x^2 + x + 3) \\
& (5x^2 - 3x + 5)(x^5 - 2x^4 - 2x^3 + 2x^2 - 3x - 1) \\
& (4x^2 - 5)(4x^5 - x^4 + 2x^3 + 5x^2 + 5x + 5) \\
& (x^2 + 4x - 2)(5x^5 - 5x^4 + 2) \\
& (2x^2 - 3x + 4)(3x^5 - 5x^4 + 3x^3 - 2x^2 - 2x + 1)
\end{aligned}$$

$$\begin{aligned}
& (x^2 - 3)(4x^5 - 2x^3 - x^2 + 3x - 5) \\
& (x^2 - 3x + 3)(2x^5 - 4x^4 + 4x^3 - x^2 - 3x - 1) \\
& (2x^2 + 2x - 1)(3x^5 - 2x^4 - 5x^3 - x - 3) \\
& (2x^2 - 3x + 3)(x^5 + 3x^4 + 5x^3 - 2x^2 - 5x + 1) \\
& (x^2 - 3x - 2)(3x^5 + 2x^3 + x^2 - 5x + 1) \\
& (3x^2 - 3x + 1)(5x^5 - x^3 - 4x^2 - 2x - 3) \\
& (x^2 + x + 3)(3x^5 + 3x^3 - x^2 + 2x + 1) \\
& (4x^2 - 5x + 5)(3x^5 - 4x^4 - x^3 - 4x^2 - 3x + 1) \\
& (2x^2 - 2x - 3)(4x^5 - x^4 + 4x^3 - 5x^2 - x - 5) \\
& (5x^2 + 2x - 5)(3x^5 + 5x^4 + 2x^3 - x^2 - 5x - 3) \\
& (4x^2 - 5x - 2)(5x^5 + 4x^4 - 5x^2 - x - 1) \\
& (x^2 - 4x - 4)(2x^5 - x^4 - 3x^3 - 4x^2 - 5x + 5)
\end{aligned}$$

10. 특집: 백차식 3제

$$\begin{aligned} & (x^{50} + x^{49} - x^{48} - x^{47} - 5x^{46} - 4x^{44} + 5x^{43} + 2x^{42} - x^{41} - 5x^{40} - 5x^{39} + 3x^{38} + x^{37} + 5x^{36} - x^{35} + x^{33} - 5x^{32} \\ & - 3x^{31} + 2x^{30} + 4x^{29} - 5x^{28} - 5x^{27} + 3x^{26} - 2x^{25} + x^{24} - 3x^{23} + 3x^{22} - 5x^{21} + 3x^{20} + 5x^{19} - 5x^{18} + 3x^{17} \\ & - 3x^{16} - x^{15} + x^{14} - 4x^{13} - 5x^{12} + 5x^{11} - x^{10} - 5x^9 + 3x^8 - 2x^7 + x^6 - x^5 + 5x^4 + 3x^3 + x^2 - x - 1)(x^{50} \\ & + 2x^{49} - x^{48} + 5x^{47} + 4x^{46} - 2x^{45} - 5x^{44} - 5x^{43} + 4x^{42} + 2x^{40} - 5x^{39} - 5x^{38} + 2x^{37} - 4x^{36} + 2x^{35} - 4x^{34} \\ & - 2x^{33} - 2x^{32} - 4x^{31} + 4x^{30} + 4x^{29} + x^{28} + 5x^{27} - x^{26} - 3x^{25} - 3x^{24} - 4x^{23} - 2x^{22} - x^{21} - x^{20} + 5x^{19} - 4x^{18} \\ & + 4x^{17} - 3x^{16} - 2x^{15} - 3x^{14} + 4x^{13} + x^{12} - x^{11} + 2x^{10} + 3x^9 - x^8 + 3x^7 + 3x^6 - 4x^4 - 3x^3 - 2x^2 + 3x - 2) \\ & (x^{50} - 4x^{47} - 4x^{46} - 5x^{45} - 2x^{44} + 3x^{43} - 5x^{42} - 2x^{41} + 2x^{40} + 2x^{39} - 3x^{38} - 2x^{37} - x^{36} + 4x^{35} - 3x^{34} \\ & + 3x^{32} + x^{31} - 3x^{30} - 2x^{29} - 4x^{28} + 2x^{27} - 4x^{26} + 5x^{25} + 2x^{24} + 2x^{23} - 4x^{22} - x^{21} - 3x^{20} - 2x^{19} + 2x^{18} \\ & - 4x^{17} - 3x^{16} + 2x^{15} - 3x^{14} - 5x^{13} + 4x^{12} + 2x^{10} - 5x^9 - 5x^7 - 5x^6 + 5x^5 - 5x^4 + 3x^3 - 3x^2 + 4)(x^{50} \\ & + 4x^{49} - 2x^{48} - 3x^{47} - x^{46} + 5x^{45} + 2x^{44} + x^{43} - x^{42} + 5x^{41} - 4x^{40} + 4x^{39} + 2x^{38} - 3x^{37} + 2x^{36} + 3x^{35} \\ & + 4x^{34} + x^{32} + 4x^{31} + 2x^{30} - 3x^{28} - x^{27} + 3x^{26} - 2x^{25} - 5x^{24} - x^{23} - 3x^{22} + 4x^{20} + 4x^{19} - 4x^{18} + 5x^{17} \\ & + 5x^{16} - x^{15} + 4x^{14} - x^{13} + x^{12} - 4x^{11} - 2x^{10} - 3x^9 + 5x^8 - x^7 - x^6 - 4x^5 + 4x^4 - 4x^3 + 5x^2 + 2x + 5) \\ & (x^{50} + 3x^{49} - 2x^{48} - 4x^{47} + 3x^{46} - x^{45} - x^{44} - 4x^{43} + 4x^{42} - 5x^{41} - x^{39} - 2x^{38} + 2x^{37} - 3x^{36} + 4x^{35} \\ & + 3x^{34} + 2x^{33} - x^{32} - 4x^{31} - 5x^{29} + x^{28} + 5x^{27} - 5x^{26} + 3x^{25} + 4x^{24} - 3x^{23} - 4x^{22} - 2x^{21} - 3x^{19} + 2x^{18} \\ & - 4x^{17} - 3x^{16} - 2x^{15} + 3x^{14} - 3x^{13} - 2x^{12} + 5x^{11} + 5x^9 + 5x^8 - 5x^7 - 4x^6 - x^5 - 5x^4 - 5x^3 + x^2 + 2x \\ & + 5)(x^{50} + 2x^{49} - 2x^{48} + 3x^{47} - 5x^{46} - 4x^{45} + 4x^{44} - 3x^{43} + x^{42} + 3x^{41} - 5x^{39} - 3x^{38} - x^{37} + 5x^{36} + 2x^{35} \\ & + 3x^{34} + 2x^{33} - x^{32} - 5x^{31} - 3x^{30} - x^{29} + 5x^{28} + 2x^{27} + x^{26} - 3x^{25} - 4x^{24} + 4x^{23} - 2x^{22} - 4x^{21} - x^{19} \\ & - x^{18} - 4x^{17} - 5x^{16} + x^{14} + 3x^{13} - 4x^{12} + 4x^{11} - x^{10} + x^9 - x^8 + 3x^7 + 3x^6 - x^5 + 3x^4 + 2x^2 + 3x - 1) \end{aligned}$$