① $x^4 - 3x^3 - 7x^2 + 27x - 18$ 1, 3

	1	-3	-7	27	-18
3	1	-3+3 = 0	-7+0 = -7	27-21 = 6	-18+18 = 0
1	1	0+1 = 1	-7+1 = -6	6-6 = 0	

$x^4 - 3x^3 - 7x^2 + 27x - 18 = (x-1)(x-3)(x^2+x-6) =$

$= (x-1)(x-3)(x+3)(x-2)$

$x^2+x-6=0$

$D = 1 - 4 \cdot 1 \cdot (-6) =$

$= 1 + 24 = 25$

$x_{1/2} = \frac{-1 \pm 5}{2} = \begin{cases} \frac{4}{2} = 2 \\ \frac{-6}{2} = -3 \end{cases}$

$-5 + \frac{3}{4} = -\frac{20}{4} + \frac{3}{4}$

$1 + \frac{10}{4} = \frac{4}{4} + \frac{10}{4}$

② $-x^4 - 5x^3 - 5x^2 + x - 9 \quad | \; -4x^3 + 5x^2 - 3x - 10$

$-x^4 + \frac{5}{4}x^3 - \frac{3}{4}x^2 - \frac{10}{4}x \quad | \; \frac{1}{4}x + \frac{25}{16}$

$-\frac{25}{4}x^3 - \frac{17}{4}x^2 + \frac{14}{4}x - 9$

$-\frac{25}{4}x^3 + \frac{125}{16}x^2 - \frac{225}{16}x - \frac{250}{16}$

$0 - \frac{193}{16}x^2 + \frac{131}{16}x + \frac{106}{16}$

$-12,0625 \quad 8,1875 \quad 6,625$

③ $(7x^3 - 7x^2 + 4x + 6)(-7x^3 + 4x^2 - 2x + 3)$

$7x^3(-7x^3) + 7x^3 4x^2 + 7x^3(-2x) + 7x^3 \cdot 3 = -49x^6 + 28x^5 - 14x^4 + 21x^3$

$-7x^2(-7x^3) - 7x^2(4x^2) - 7x^2(-2x) - 4x^2 \cdot 3 = 49x^5 - 28x^4 + 14x^3 - 21x^2$

$4x(-7x^3) + 4x(4x^2) + 4x(-2x) + 4x \cdot 3 = -28x^4 + 16x^3 - 8x^2 + 12x$

$6 \cdot (-7x^3) + 6 \cdot 4x^2 + 6(-2x) + 6 \cdot 3 = -42x^3 + 24x^2 - 12x + 18$

$-49x^6 + 77x^5 - 70x^4 + 9x^3 - 5x^2 + 18$

④ $HOM(x^3 + 2x^2 - 4x - 8, x^2 - 4) =$

$x^3 + 2x^2 - 4x - 8 \quad | \; x^2 - 4$

$x^3 \quad - 4x \quad | \; x$

$2x^2 \quad - 8$

$HOM(2x^2 - 8, x^2 - 4)$

$2x^2 - 8 \quad | \; x^2 - 4$

$2x^2 - 8 \quad | \; 2$

0

$HOM(x^2 - 4, 0)$

$HOM(48, 16)$

$x^2 - 4$

⑤ $x(x+2)(x-2)(x+1) =$

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

$= x^4 - 2x^3 + 2x^3 - 4x^2 + x^3 - 2x^2 + 2x^2 - 4x =$

$= x^4 + x^3 - 4x^2 - 4x$