15. $9x^2 - 12x + C$ (−6x, −6x)

$(3x-2)^2$ (−6x)

14. $x^2 - 9x + C$

$(x - \frac{9}{2})^2$

$C = \frac{81}{4}$

$c = 4$

17. $(x+1)^2(x^2-x+1)(x-4)$

18. $(3x-1)(2x^3-5)(x-6)$

$x+1$

	5	4	3	2	1	0
−1	1	−3	−4	1	−3	−4
		−1	4	0	−1	4
	1	−4	0	1	−4	0

$x^4 - 4x^3 + x - 4$

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

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

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

x^5

5. $2w^3+54$

$2(w^3+27)$

$2(w+3)(w^2-3w+9)$

1 8 27 64 125 216 343 512 729 ✓ 1000 ✓

6. $40v^3-625$

$5(8v^3-125)$

$5(2v-5)(4v^2+10v+25)$

15. 4 | 1 −4 0 8 −32

4 0 0 32

1 0 0 8 | 0

x^3+8

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

11. $(5p+1)(5p-1)(p-1)$

12. $(m+2)(3m+2)(3m-2)$

15. x^4+x^2-20

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

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

16. $6y^6-5y^3-4$

$(\quad)(\quad)$

$6y^6+3y^3-8y^3-4$

$3y^3(2y^3+1)-4(2y^3+1)$

$(3y^3-4)(2y^3+1)$

21. $-2(2x^2-3)(x^2-5)$

22. $2(b-2)(b^2+2b+4)(b+7)$

$2b^4+14b^3-16b-112$

$2b^3(b+7)-16(b+7)$

$(2b^3-16)(b+7)$

$2(b^3-8)(b+7)$

$2(b-2)(b^2+2b+4)(b+7)$

13. $(x^2+9)(x+3)(x-3)$

14. $(2x^2+3)(x^2+1)$

16. $6x^4-9x^2+3$ M. $2x^4+5x^2+3$ $(2x^2+3)(x^2+1)$

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

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

15. $(a^2b+5)(a^4b^2-5a^2b+25)$

16. $2ac^2-5bc^2-2ad^2+5bd^2$

$c^2(2a-5b)-d^2(2a-5b)$

$(2a-5b)(c^2-d^2)$

$(2a-5b)(c+d)(c-d)$

15. a^6b^3+125 $(a^2)^3$

$(a^2b+5)(a^4b^2-5a^2b+25)$

$5a^2b$

$a^2b\ a^2b$

13. x^2+3x+c $a^2\cdot a^2\cdot a^2=a^6$ $(a^2)^3$

$(x+\frac{3}{2})^2$

$c=\frac{9}{4}$

15. $4x^7 - 64x^3$

$4x^3(x^4 - 16)$

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

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

14.

14. $5x^2 - 20x - 25$

$(5x - 5)(x + 5)$

$-5x$

$25x$

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

$5(x+1)(x-5)$

GCF

2 terms:

$a^2 - b^2 = (a+b)(a-b)$

$a^3 \pm b^3 = (a+b)(a^2 \mp ab + b^2)$

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3 terms: – guess-check ✓
– product ac w/ grouping ✓

( )( )

* PS: $a^2 + 2ab + b^2 = (a+b)^2$

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4 or more terms:
Grouping

* if factor is given, may use synthetic division

$x^2 + bx + c = \left(x + \frac{b}{2}\right)^2$

$c = \left(\frac{b}{2}\right)^2$

$5x^2 - 20x - 25$ $5(x^2 - 4x - 5)$

$(5x - 5)(x + 5)$ $5(x+1)(x-5)$

$-5x$

$+25x$

$4x^7 - 64x^3$

$4x^3(x^4 - 16)$

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

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