The Weekly Rigor

No. 286 "A mathematician is a machine for turning coffee into theorems." December 14, 2019

60 Problems in Factoring by a Mixture of Methods

(Part 3)

ANSWERS

1. $(x+5y)(x^2-5xy+25y^2)$	2. $4xy^2(2x^4+3y)$
3. $(2-x-y)(x^2+y^2+2x+2y+2xy+4)$	4. Prime
5. $(2x+3)(x+6)$	6. $4(3t^3-2t^2-6t+5)$
7. $m(m^2+1)$	8. $(3y-2)(y^2-2)$
9. $(x^2+y^2)(x^4-x^2y^2+y^4)$	10. $(\theta+5)(\theta-5)$
11. $(x+3)(x+2)(x-2)$	12. $(\alpha+7)(\alpha+3)$
13. $(x+4)(x^2-4x+16)$	14. Prime
15. $3(x+5)(x-5)$	16. $(11m+n)(11m-n)$
17. $27(x-3)(x^2-3x+3)$	18. $(2\alpha+3\beta)(2\alpha-3\beta)$
19. $4x(3x+2)(x-1)$	20. $(x+2)(x-2)(5x+3)$
21. $-2(3x^2+24x+49)$	22. $(5t+3)(t+4)$
23. $(x+y+2)(x^2+y^2-2x-2y+2xy+4)$	24. $12x^3(x-1)(x^2+2)$
25. $(4x-3y)(16x^2+12xy+9y^2)$	26. $x^2(x+1)$
27. $2(5m+3n^2)(n+5)$	28. $(x+2)(x-2)(x^4+4x^2+16)$
29. $(4x+y)(16x^2-4xy+y^2)$	30. $x(x+1)(x-1)$

31. $(7x+1)(y+2x^2)(y-2x^2)$	32. $10x(2x-1)(x+3)$
33. $(3+2x)(9-6x+4x^2)$	34. $2r(4r^2+5)(3r+5)$
35. $(3x-1)(9x^2+3x+1)$	36. $(x^2+1)(x+1)(x-1)(3x+5)$
37. $(3x+2y)(x+y)$	38. $(e^x+1)(e^x-1)$
39. $(4+x)(16-4x+x^2)$	40. $(1+\cos(\theta))(1-\cos(\theta))$
41. $(e^x-\ln(x))(e^{2x}+e^x\ln(x)+\ln^2(x))$	42. $(e^x-2)(e^{2x}+5)$
43. $(2-x)(4+2x+x^2)$	44. $(3e^x-5)(e^x+1)$
45. $(x+3)(x^2-3x+9)$	46. $(e^{2x}+4)(e^x+2)(e^x-2)$
47. $3e^x(2e^x-1)(3e^x-4)$	48. $(xy+3)(xy-3)$
49. $(3x-1)^2$	50. $(\ln(x)+3)(\ln(x)-3)$
51. $(\ln(x)+2)(\ln^2(x)-2\ln(x)+4)$	52. $(\sin(x)+\cos(x))(\sin(x)-\cos(x))$
53. $(\sin(\theta)+1)(\sin(\theta)-1)$	54. $(\ln(x)-3)(\ln^2(x)+3\ln(x)+9)$
55. $(e^x+4)(e^x-4)$	56. $(e^x-2)(e^{2x}+2e^x+4)$
57. $e^{2x}(e^x+1)(e^x-1)$	58. $(e^x+1)(e^{2x}-e^x+1)$
59. $[e^x\sin(x)+x\ln(x)][e^x\sin(x)-x\ln(x)]$	60. $(x-4y)(2x-y)$