

EXTRA PRACTICE NOT EXTRA CREDIT

Factor each polynomial completely.

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| 1. $x^2 - x - 42$ | 2. $4x^2 - 18$ | 3. $2x^2 + 9x + 9$ | 4. $2x^2 + 3xy + y^2$ |
| 5. $6x^2 - x - 15$ | 6. $4x^2 - 25$ | 7. $x^2 - 28x + 196$ | 8. $7x^2 - 847$ |
| 9. $x^2 + 18x + 81$ | 10. $x^2 + 4x - 21$ | 11. $3x^2 + 21x$ | 12. $3x^2 - 20x - 32$ |
| 13. $9x^2 - 16$ | 14. $4x^2 + 20x + 25$ | 15. $x^2 - 5x + 6$ | 16. $5x^3 + 15x^2 - 20x$ |
| 17. $4x^2 + 18$ | 18. $x^2 - 12x + 36$ | 19. $x^2 - 3x - 54$ | 20. $6x^2 - 21$ |
| 21. $2x^2 + 15x + 18$ | 22. $16x^2 - 1$ | 23. $x^2 - 14x + 49$ | 24. $x^2 + 8x + 15$ |
| 25. $3x^3 - 12x^2 - 45x$ | 26. $3x^2 + 24$ | 27. $x^2 + 16x + 64$ | |

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| 28. $75x^3 - 27x$ | 29. $3x^3 - 12x^2 - 36x$ | 30. $4x^3 - 44x^2 + 112x$ |
| 31. $5y^2 - 125$ | 32. $3x^2y^2 - xy^2 - 4y^2$ | 33. $x^3 + 10x^2 - 24x$ |
| 34. $3x^3 - 6x^2 - 45x$ | 35. $3x^2 - 27$ | 36. $x^4 - 16$ |
| 37. $2x^2 + 5x - 7$ | 38. $3x^2 - 13x + 4$ | 39. $2x^2 + 9x + 10$ |
| 40. $4x^2 - 13x + 3$ | 41. $4x^2 + 12x + 5$ | 42. $6x^3 + 31x^2 + 5x$ |
| 43. $64x^2 + 16x + 1$ | 44. $7x^2 - 33x - 10$ | 45. $5x^2 + 12x - 9$ |

Answers

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| 1. $(x + 6)(x - 7)$ | 2. $2(2x^2 - 9)$ | 3. $(2x + 3)(x + 3)$ |
| 4. $(2x + y)(x + y)$ | 5. $(2x + 3)(3x - 5)$ | 6. $(2x - 5)(2x + 5)$ |
| 7. $(x - 14)^2$ | 8. $7(x - 11)(x + 11)$ | 9. $(x + 9)^2$ |
| 10. $(x + 7)(x - 3)$ | 11. $3x(x + 7)$ | 12. $(x - 8)(3x + 4)$ |
| 13. $(3x - 4)(3x + 4)$ | 14. $(2x + 5)^2$ | 15. $(x - 3)(x - 2)$ |
| 16. $5x(x + 4)(x - 1)$ | 17. $2(2x^2 + 9)$ | 18. $(x - 6)^2$ |
| 19. $(x - 9)(x + 6)$ | 20. $3(2x^2 - 7)$ | 21. $(2x + 3)(x + 6)$ |
| 22. $(4x + 1)(4x - 1)$ | 23. $(x - 7)^2$ | 24. $(x + 3)(x + 5)$ |
| 25. $3x(x^2 - 4x - 15)$ | 26. $3(x^2 + 8)$ | 27. $(x + 8)^2$ |
| 28. $3x(5x - 3)(5x + 3)$ | 29. $3x(x - 6)(x + 2)$ | 30. $4x(x - 7)(x - 4)$ |
| 31. $5(y + 5)(y - 5)$ | 32. $y^2(3x - 4)(x + 1)$ | 33. $x(x + 12)(x - 2)$ |
| 34. $3x(x - 5)(x + 3)$ | 35. $3(x - 3)(x + 3)$ | 36. $(x - 2)(x + 2)(x^2 + 4)$ |
| 37. $(2x + 7)(x - 1)$ | 38. $(3x - 1)(x - 4)$ | 39. $(x + 2)(2x + 5)$ |
| 40. $(4x - 1)(x - 3)$ | 41. $(2x + 5)(2x + 1)$ | 42. $x(6x + 1)(x + 5)$ |
| 43. $(8x + 1)^2$ | 44. $(7x + 2)(x - 5)$ | 45. $(5x - 3)(x + 3)$ |