

- 45) ~~4x~~ -4xy
 46) 4(2a+b)(2a+2b)
 47) -3(a+3b)(5a+7b) 50) 8(2x+ty)(x+8y)
 48) (19x+4)(x+b)
 49) -4(3x+y)(x+3y)

2.10 Exercise

B You must be able to recognize which skills must be used to factor a polynomial. When you factor the following polynomials, always check for a common factor first. There are at least two expressions that cannot be factored. Can you find others?

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|---|--|---|
| 1. $3a^2 + 6a$ | 2. $2x - 8xy$ | 3. $36a^3 - 4a^2$ |
| 4. $25a^4 - 9y^4$ | 5. $x^2 + 7x + 12$ | 6. $3a^2 - 3b^2$ |
| 7. $y^2 - 11y + 28$ | 8. $16x^2 - 8x + 1$ | 9. $a^2 - ab - 56b^2$ |
| 10. $4x^2 - 11x + 6$ | 11. $-1 + 9k^2$ | 12. $1 + 18y + 32y^2$ |
| 13. $2y^2 - 8y^3$ | 14. $x^2 + 6x + 8$ | 15. $56x^2 + 9x - 2$ |
| 16. $-16 - 9x^2$ | 17. $16 - 28x + 10x^2$ | 18. $m^4 - 16$ |
| 19. $8 - 14y + 5y^2$ | 20. $-(1 - a^4)$ | 21. $m^4 - 5m^2 - 36$ |
| 22. $6a^2 + 5a + 1$ | 23. $x^4 - y^4$ | 24. $p^2 - 2pq - 63q^2$ |
| 25. $m^4 + 3m^2 - 4$ | 26. $x^2 - xy$ | 27. $x^2 + 3xy - x$ |
| 28. $a^2 - 144$ | 29. $3a^2 - 36a + 36$ | 30. $(a+b)^2 - c^2$ |
| 31. $-a^2 - 2ab - b^2$ | 32. $x^3 + 5x^2 - 6$ | 33. $x^4 + 18x^2 + 32$ |
| 34. $m^4 - 9m^2 - 112$ | 35. $x^8 - 1$ | 36. $2y^2 - 2y - 24$ |
| 37. $2x^2 - 8$ | 38. $4y^2 + 8y - 60$ | 39. $m^4 - 16$ |
| 40. $2x^2 - 16x + 32$ | 41. $x^3 - xy^2$ | ✓ 42. $x^4 - 5x^2 + 4$ |
| 43. $-48 - 3y^2$ | 44. $x^2y^3z - 2xy^2$ | |
| 45. $(x-y)^2 - (x+y)^2$ | 46. $9(a+b)^2 - (a-b)^2$ | |
| 47. $(a-b)^2 - 16(a+2b)^2$ | 48. $25(2x+1)^2 - (9x-1)^2$ | |
| 49. $4(x-y)^2 - 16(x+y)^2$ | 50. $25(x+2y)^2 - 9(x-2y)^2$ | |

25. $(m^2+4)(m+1)(m-1)$
 26. $x(x-y)$
 27. $x(x+3y-1)$
 28. $(a+12)(a-12)$
 29. N.P.
 30. $-(a+b)^2$
 32. NP
 33. $(m^2+16)(m^2+2)$
 34. $(m^2+7)(m+4)(m-4)$
 35. $(x^4+1)(x^2-1)(x+1)(x-1)$
 36. $2(y-4)(y+3)$
 38. $4(y+5)(y-3)$
 39. $(m^2+4)(m+2)(m-2)$
 42. $(x+2)(x-2)(x+1)(x-1)$
 43. $-3(y^2+16)$
 44. $xy^2(xy^2-2)$

- 1a) $3a(a+2)$
 2) $2x(1-4y)$
 3. $4a^2(9a^2-d)$
 4. $(5a^2+3y^2)(5a^2-3y^2)$
 5. $(x+4)(x+3)$
 6. $3(a+b)(a-b)$
 7. $(y-4)(y-7)$

8. $(4x-1)^2$
 9. $(a-8b)(a+7b)$
 10. $(4x-3)(x-2)$
 11. $(3k+1)(3k-1)$
 12. $(1+16y)(1+2y)$
 13. $2y^2(1-4y)$
 14. $(x+4)(x+2)$
 15. $(7x+2)(8x-1)$

16. $-(16+9x^2)$
 17. $2(4x-5)(2x-1)$
 18. $(m^2+4)(m+4)(m-4)$
 19. $(4x-5)(2x+1)$
 20. $(a^2+1)(a+1)(a-1)$
 21. $(m^2+4)(m+2)(m-2)$
 23. $(x^2+y^2)(x+y)(x-y)$
 24. $(p+7q)(p-9q)$