NRF 10 FACTORING WORKSHEET

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?

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. $25(x + 2y)^2 - 9(x - 2y)^2$

Solutions

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1. $3a(a + 2)$ **2.** $2x(1 - 4y)$ **3.** $(2a)(2a)(9a - 1)$
4. $(5a^2 - 3y^2)(5a^2 + 3y^2)$ **5.** $(x + 3)(x + 4)$
6. $3(a - b)(a + b)$ **7.** $(y - 7)(y - 4)$ **8.** $(4x - 1)^2$
9. $(a - 8b)(a + 7b)$ **10.** $(4x - 3)(x - 2)$
11. $(3k - 1)(3k + 1)$ **12.** $(1 + 2y)(1 + 16y)$
13. $2y^2(1 - 4y)$ **14.** $(x + 2)(x + 4)$ **15.** $(8x - 1)(7x + 2)$
16. cannot be factored **17.** $2(4 - 5x)(2 - x)$
18. $(m^2 + 4)(m + 2)(m - 2)$ **19.** $(4 - 5y)(2 - y)$
20. $(a^2 + 1)(a + 1)(a - 1)$ **21.** $(m^2 + 4)(m + 3)(m - 3)$
22. $(3a + 1)(2a + 1)$ **23.** $(x^2 + y^2)(x + y)(x - y)$
24. $(p - 9q)(p + 7q)$ **25.** $(m^2 + 4)(m + 1)(m - 1)$
26. $x(x - y)$ **27.** $x(x + 3y - 1)$ **28.** $(a + 12)(a - 12)$
29. $3(a^2 - 12a + 12)$ **30.** $(a + b + c)(a + b - c)$
31. $-(a + b)^2$ **32.** cannot be factored **33.** $(x^2 + 2)(x^2 + 16)$
34. $(m^2 + 7)(m + 4)(m - 4)$
35. $(x^4 + 1)(x^2 + 1)(x + 1)(x - 1)$ **36.** $2(y - 4)(y + 3)$
37. $2(x + 2)(x - 2)$ **38.** $4(y + 5)(y - 3)$
39. $(m^2 + 4)(m + 2)(m - 2)$ **40.** $2(x - 4)^2$
41. $x(x + y)(x - y)$ **42.** $(x + 2)(x + 1)(x - 2)(x - 1)$
43. $-3(16 + y^2)$ **44.** $xy^2(xyz - 2)$ **45.** $-4xy$
46. $4(2a + b)(a + 2b)$ **47.** $-3(5a + 7b)(a + 3b)$
48. $(19x + 4)(x + 6)$ **49.** $-4(3x + y)(x + 3y)$
50. $8(2x + y)(x + 8y)$