Factoring Using the Greatest Common Factor (ALG.FAC.01)

Factor each expression using the greatest common factor (GCF).

1. $8x + 6$ $\mathbf{2(4x + 3)}$
2. $10m^2 - 5m^7$ $\mathbf{5m^2(2 - m^5)}$
3. $-72n^5 - 40n^3$ $\mathbf{-8n^3(9n^2 + 5)}$
4. $-8g - 22$ $\mathbf{-2(4g + 11)}$
5. $18x^6 + 18x^4 - 12x^3$ $\mathbf{6\,x^3(3\,x^3 + \,3\,x\, - \,2)}$
6. $14y^3 - 21y^2 + 7y$ $\mathbf{7y(2y^2 - 3y + 1)}$
7. $12ab + 8b^2$ $\mathbf{4b(3a + 2b)}$
8. $-30m^2n^3 - 18m^2n$ $\mathbf{-6m^2n(5n^2 + 3)}$
9. $-15a^2b^2 + 10a^2b - 20b$ $\mathbf{-5b(3a^2b - 2a^2 + 4)}$
10. $-mn^2 - mn + mn^3$ $\mathbf{-mn(n + 1 - n^2)}$
11. $32x^4y^4 - 4x^4y^3 + 20x^4y^2$ $\mathbf{4x^4y^2(8y^2 - y + 5)}$
12. $-28u^2v^4 - 70u^3 - 7u^2 - 35uv$ $\mathbf{-7u(4uv^4 + 10u^2 + u + 5v)}$
13. $8m^6n^4 + 8m^6n^2 - 32m^4n^3 - 8m^4n^2$ $\mathbf{8m^4n^2(m^2n^2 + m^2 - 4n - 1)}$
14. $15p^2q^3 - 27p^2q^2 + 27p^3q + 15p$ $\mathbf{3p(5pq^3 - 9pq^2 + 9p^2q + 5)}$
15. $-48g^8h^3 - 24g^6h^4 + 60g^4h^5 - 12g^2h^6$ $\mathbf{-12g^2h^3(4g^6 + 2g^4h - 5g^2h^2 + h^3)}$
16. $60m^7n^5 + 5m^7n^2 + 5m^6np^2 + 40m^6n^2$ $\mathbf{5m^6n(12mn^4 + mn + p^2 + 8n)}$
17. $14a^4b^2c + 35a^3b^3c - 21a^3b^2c^2 - 7a^3b^2c$ $\mathbf{7a^3b^2c(2a + 5b - 3c - 1)}$
18. $-36x^3y^5 + 90x^2y^7 - 18x^2y^5$ $\mathbf{-18x^2y^5(2x - 5y^2 + 1)}$

Multiply each expression and then factor it using the greatest common factor.

19. $-4ab^3(a^2 + 3b) + 6b^2(a - a^2)$ $\mathbf{-2ab^2(2a^2b + 3a + 6b^2 - 3)}$
20. $10x^2(3y - y^3) - 4y(8x^3 - 5x) + 32x^3y$ $\mathbf{-10xy(xy^2 - 3x - 2)}$
21. $-4m^2n(3n^3 - 5m^2n + mn) + 2n^3(m^3 - 5n^2 + 12n) - 2m^3(n^3 + n^2)$
$\mathbf{2n^2(10m^4 - 3m^3 - 6m^2n^2 - 5n^3 + 12n^2)}$
22. $6mn(m^2 - 3mn + 2n^2) - 3n^2(4m + mn + 2n^2) + 3n^3(2n - 3m)$ $\mathbf{6mn(m^2 - 3mn - 2n)}$