NAME

Module 12 Simplifying Algebraic Expressions by Factoring Polynomials

Lesson 1 Factoring by Removing the Greatest Common Factor

Factor, if possible.

1. $3a + 18$

3(a + 6)

2. $9m - 27$

9(m − 3)

3. $7g + 49$

7(g + 7)

4. $12h - 24$

12(h − 2)

5. $5m^2 - 10m$

5m(m − 2)

6. $15a^4 + 30a^2$

15a²(a² + 2)

7. $9a^2 + 10b^2$

No common monomial factor

8. $30j^3 - 48j^5$

6j³(5 − 8j²)

9. $25g^9 - 45g^7$

5g⁷(5g² − 9)

10. $22a - 2a^3$

2a(11 − a²)

11. $12x^2 - 24x + 24$

12(x² − 2x + 2)

12. $8a^2 + 12a + 3$

No common monomial factor

13. $5y^4 + 20y^3 - 15y^2$

5y²(y² + 4y − 3)

14. $81z^5 + 72z^3 + 36z^2$

9z²(9z³ + 8z + 4)

15. $21c^2 - 14c^3 - 28c^4$

7c²(3 − 2c − 4c²)

16. $32h^2 - 16h^5 + 8h^7$

8h²(4 − 2h³ + h⁵)

17. $a^2b^3 - a^3b^4$

a²b³(1 − ab)

18. $6a^2b^2 + 12ab$

6ab(ab + 2)

19. $14g^3h^5 - 7gh^4$

7gh⁴(2g²h − 1)

20. $16cd^2 - 12c^2f$

4c(4d² − 3cf)

21. $12x^5y^2 - 36x^4y^5 + 60xy^3$

$12xy^2(x^4 - 3x^3y^3 + 5y)$

22. $45ab^5 + 18ab - 27a^2b^2$

$9ab(5b^4 + 2 - 3ab)$

23. $m^2n^3 - m^3n^2 + mn^3$

$mn^2(mn - m^2 + n)$

24. $r^3s^5 + r^2s^4 + rs^3$

$rs^3(r^2s^2 + rs + 1)$

25. $72y^3z - 36yz^2 + 54y^3z^4$

$18yz(4y^2 - 2z + 3y^2z^3)$

26. $192m^2n^2 - 96mn^3 - 64m^3n^2$

$32mn^2(6m - 3n - 2m^2)$

27. $72uv^2 - 48u^2v^3 + 120uv^5$

$24uv^2(3 - 2uv + 5v^3)$

28. $80p^5q^2 - 48p^6q^3 - 64p^5q^3$

$16p^5q^2(5 - 3pq - 4q)$