

NAME _____

DATE _____

Module 12 Factoring Using Several Methods
Lesson 6 Dividing Polynomials by Monomials



**independent
practice**

Factor completely.

1. $3x^3 - 48x$

3. $12x^3 - 108x$

5. $3d^3 + 21d^2 + 36d$

7. $5a^3 - 40a^2 + 75a$

9. $8z^2 + 28z + 12$

11. $6d^3 + 2d^2 - 8d$

13. $r^3 + 2r^2 - 16r - 32$

15. $6m^6 - 12m^4 - 48m^2$

17. $a^2b + 3a^2 - 36b - 108$

19. $-2f^2g^2 + 10f^2g + 18g^2 - 90g$

2. $y^4 - 81y^2$

4. $-4c^3 + 196c$

6. $2x^3 + 6x^2 - 20x$

8. $3p^2q + 12pq - 63q$

10. $12f^3 - 2f^2 - 4f$

12. $12m^3n + 2m^2n - 80mn$

14. $2b^5 - 32b$

16. $162n^9 - 288n^7 + 288n^5 - 512n^3$

18. $3c^2d^2 + 21c^2d - 48d^2 - 336d$

20. $2x^3y^2 - 18x^3 + 32xy^2 - 288x$

Journal

1. Raoul believes that the simplest factored form of $x^4 - 16$ is $(x^2 + 4)(x^2 - 4)$. Explain why he is incorrect and provide the correct answer.
2. Describe the process for factoring $z^3 + 5z^2 - z - 5$.
3. Explain the steps for completely factoring $16m^4 - 81n^4$.
4. Ramzi and Sashi have been discussing the difference of two squares. Ramzi states that the completely factored form of $-3a^3 - 3ab^2$ is $-3a(a^2 - b^2)$, but Sashi insists that the completely factored form is $-3a(a + b)(a - b)$. Is either student correct? Explain why or why not.

Cumulative Review

Simplify.

1. $14x^2 + 28$

2. $-2m^3 - 16m$

3. $-(a + b) + c(a + b)$

4. $cd + 5 + 5d + c$

5. $81 - 4z^2$

6. $p^4 - 81$

7. $x^2 - 2x - 63$

8. $g^2 - 16g + 39$

9. $5q^2 - 29q - 6$

10. $-6n^3 - 10n^2 + 56n$
