

LESSON
5.4**Practice C**

For use with pages 353–359

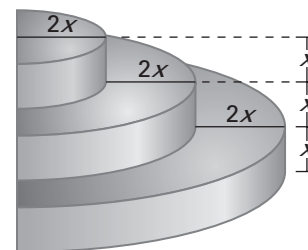
Factor the polynomial completely using any method.

1. $x^3 - 512$
2. $2a^3 + 432$
3. $7h^3 + 448$
4. $-3c^3 + 24$
5. $12x^3 - 6x^2 + 2x - 1$
6. $3k^4 + 27k^3 - 7k - 63$
7. $3n^3 - 10n^2 - 48n + 160$
8. $x^6 + x^5 - x^4 - x^3$
9. $y^4 - 81$
10. $2z^4 - 1250$
11. $6a^4 + 13a^2 - 5$
12. $6b^4 - 17b^2 - 28$
13. $r^5 + r^3 - r^2 + 1$
14. $-4w^8 - 8w^6 + 4w^4 + 8w^2$
15. $a^6b^3 + 125$
16. $2ac^2 - 5bc^2 - 2ad^2 + 5bd^2$

Find the real-number solutions of the equation.

17. $x^3 + 1000 = 0$
 18. $27g^3 - 8 = 0$
 19. $6v^3 = 384$
 20. $p^3 + 4p^2 - 9p = 36$
 21. $125q^4 - 27 = 125q^3 - 27q$
 22. $s^4 - 11s^2 + 28 = 0$
 23. $162y^4 = 2$
 24. $m^6 - 64 = 0$
 25. $3z^{11} - 3z^5 = 0$
 26. $16h^5 - 25h^3 + 9h = 0$
 27. $12n^7 + 2n^5 = 30n^3$
 28. $6r^7 + 6r^5 = 9r^6 + 9r^4$
29. Write a polynomial that can be factored using grouping and the sum of cubes. Show the complete factorization of your polynomial.

30. **Theater** A stage crew is assembling a three-level semi-circular platform on a stage for a performance. The platform has the dimensions shown in the diagram and a total volume of 448π cubic feet.



- a. What is the volume, in terms of x , of each of the three levels of the platform?
- b. Use what you know about the total volume to write an equation involving x .
- c. Solve the equation from part (b).
- d. Use your solution from part (c) to calculate the dimensions (radius and height) of each of the levels of the platform.