

Find the greatest common factor of the terms in the polynomial.

1. $4x^4 + 12x^3$

3. $16x^5 - 8x$

5. $15p^6 - 5p^4 - 10p^2$

2. $10y^2 + 4y - 64$

4. $32n^5 - 64n^3 + 16n^2$

6. $36c^9 + 13$

Factor the sum or difference of cubes.

13. $s^3 - 1$

15. $x^3 - 27$

17. $h^3 + 64$

14. $q^3 + 1$

16. $a^3 + 125$

18. $8y^3 - 125$

Factor the polynomial by grouping.

19. $x^3 + 2x^2 + 3x + 6f$

21. $f^3 + 4f^2 + f + 4$

23. $25p^3 - 25p^2 - p + 1$

20. $z^3 - z^2 + 5z - 5$

22. $z^3 - 2z^2 - 16z + 32$

24. $9m^3 + 18m^2 - 4m - 8$

Factor the polynomial in quadratic form.

25. $x^4 - 36$

27. $x^4 + x^2 - 20$

26. $c^4 - 81$

28. $6m^6 + 18m^2 - 4m - 8$

Mixed Practice. Choose the method for factoring & factor completely.

29. $x^6 - 4$

35. $2b^4 + 14b^3 - 16b - 112$

41. $40v^3 - 625$

30. $d^4 - 7d^2 + 10$

36. $y^3 - 8y$

42. $2x^4 - x^3 + 6x - 3$

31. $24q^3 - 81$

37. $64n^3 - 27$

43. $64n^3 - 27$

32. $a^6 + 7a^2 + 6$

38. $y^4 - 14y^2 + 45$

44. $2w^3 - 8w$

33. $-4x^4 + 26x^2 - 30$

39. $27g^3 + 343$

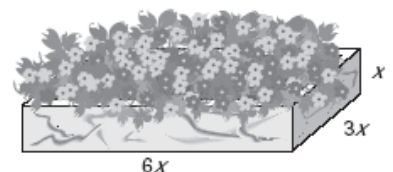
45. $t^3 - 2t^1 - 9t + 18$

34. $x^3 + 125$

40. $x^3 + 6x^2 + 7x + 42$

46. $n^4 + 6n^3$

47. **City Park** You are designing a marble planter for a city park. You want the length of the planter to be six times the height, and the width to be three times the height. The sides should be one foot thick. Because the planter will be on the sidewalk, it does not need a bottom. What should the outer dimensions of the planter be if it is to hold 4 cubic feet of dirt?



Name _____ Date _____ Alg 2... Warm-up activity

Find the real-number solutions of the equation.

1. $v^3 + 5v^2 = 0$

3. $2x^3 - 16 = 0$

2. $x^2 - 5x + 6 = 0$

4. $3r^2 + 15r^3 - 18r = 0$

Name _____ Date _____ Alg 2... Warm-up activity

Match the polynomial with its factorization.

1. $3x^2 + 11x + 6$

4. $2x^7 - 2x^5 - 24x^3$

A. $2x^3(x + 2)(x - 2)(x^2 + 3)$

B. $2x(x + 4)(x - 4)$

C. $(3x + 2)(x + 3)$

D. $(x^2 + 4)(x - 4)$

2. $x^3 - 4x^2 + 4x - 16$

5. $2x^5 + 4x^4 - 4x^3 - 8x^2$

E. $2x^2(x^2 - 2)(x + 2)$

F. $(5x - 6)(25x^2 + 30x + 36)$

3. $125x^3 - 216$

6. $2x^3 - 32x$

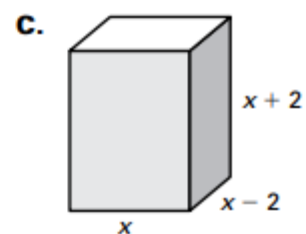
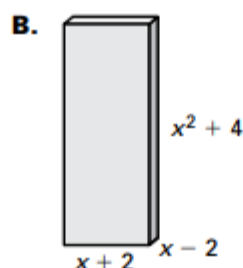
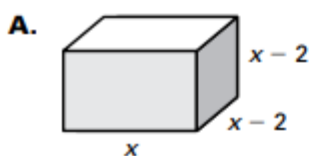
Name _____ Date _____ Alg 2... Warm-up activity

Match the equation for volume with the appropriate solid.

1. $V = x^3 - 4x^2$

2. $V = x^3 - 4x^2 + 4x$

3. $V = x^4 - 16$



Name _____ Date _____ Alg 2... Ending- activity

Find the real-number solutions of the equation.

1. $10s^3 = 30s^2$

3. $x^3 + 2x^2 - 25x - 50 = 0$

2. $6w^3 + 30w^2 - 18w - 90 = 0$

4. $w^4 - 64w = 0$

Name _____ Date _____ Alg 2... Ending- activity

Factor the polynomial completely using any method.

1. $2a^3 + 432$

3. $x^6 + x^5 - x^4 - x^3$

2. $12x^3 - 6x^2 + 2x - 1$

4. $y^4 - 81$

Name _____ Date _____ Alg 2... Ending- activity

Factor the polynomial completely using any method.

1. $3k^4 + 27k^3 - 7k - 63$

3. $6a^4 + 13a^2 - 5$

2. $7h^3 + 448$

4. $2ac^2 - 5bc^2 - 2ad^2 + 5bd^2$

Factor the polynomial completely using any method.

5. $x^3 - 512$
6. $-3c^3 + 24$
7. $2z^4 - 1250$
8. $6b^4 - 17b^2 - 28$
9. $r^5 + r^3 - r^2 + 1$
10. $-4w^8 - 8w^6 + 4w^4 + 8w^2$
11. $a^6b^3 + 125$

Find the real-number solutions of the equation.

12. $x^3 + 1000 = 0$
13. $27g^3 - 8 = 0$
14. $6v^3 = 384$
15. $p^3 + 4p^2 - 9p = 36$
16. $125q^4 - 27 = 125q^3 - 27q$
17. $s^4 - 11s^2 + 28 = 0$
18. $162y^4 = 2$
19. $m^6 - 64 = 0$
20. $3z^{11} - 3z^5 = 0$
21. $16h^5 - 25h^3 + 9h = 0$
22. $12n^7 + 2n^5 = 30n^3$
23. $6r^7 + 6r^5 = 9r^5 + 9r^4$