

Chapter 3 More about Factorization

Multiple Choice Section

1. Factorize $6x + 18x^2$.

- A. $6x(1 + 3x)$
- B. $6x(1 + 3x^2)$
- C. $6(3 + x)^2$
- D. $6(3x^2 + 1)$

2. Factorize $14x^2y^2 + 8yz$.

- A. $2y^2(7x^2 + 8z)$
- B. $2y(7xy + 8z)$
- C. $2y(7xy^2 + 4y)$
- D. $2y(7x^2y + 4z)$

3. Factorize $2bc - 10ab + cd - 5ad$.

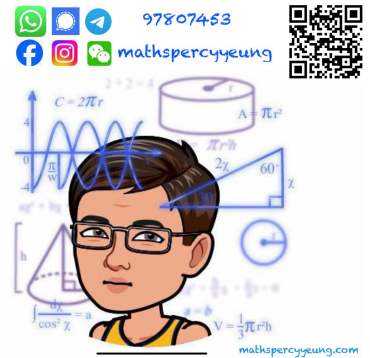
- A. $(b + 2d)(c - 5a)$
- B. $(b + 2d)(5a - c)$
- C. $(2b + d)(c - 5a)$
- D. $(2b + d)(5a - c)$

4. Factorize $10ap + 15aq - 10bp - 15bq$.

- A. $(a - b)(10p + 15q)$
- B. $(a + b)(10p + 15q)$
- C. $5(a + b)(2p + 3q)$
- D. $5(a - b)(2p + 3q)$

5. Factorize $3x^2 + 6xy + 3y^2$.

- A. $3(x^2 + y^2)$
- B. $3(x - y)^2$
- C. $(x - y)^2$
- D. $3(x + y)^2$



6. Factorize $-25s^2 + 20s - 4$.

- A. $(5s + 2)^2$
- B. $-(5s + 2)^2$
- C. $-(5s - 2)^2$
- D. $(5s - 2)^2$

7. Factorize $36a^2 - b^2 + 6a - b$.

- A. $(6a + b - 1)(6a + b)$
- B. $(6a + b + 1)(6a + b)$
- C. $(6a + b - 1)(6a - b)$
- D. $(6a + b + 1)(6a - b)$

8. Factorize $4 - a^2 - b^2 - 2ab$.

- A. $(2 - a + b)^2$
- B. $(2 + a + b)(2 - a - b)$
- C. $(2 + a - b)(2 - a - b)$
- D. $(2 + a + b)(2 - a + b)$

9. Factorize $625 - x^4$.

- A. $(25 - x^2)^2$
- B. $(5 - x)^2(25 + x^2)$
- C. $(5 + x)(5 - x)(25 + x^2)$
- D. $(25 - x^2)(25 + x^2)$

10. Factorize $(x^2 - y^2) + 4(x^2 + 2xy + y^2)$.

- A. $(x - y)(5x + 3y)$
- B. $(x + y)(5x - 3y)$
- C. $(x - y)(5x - 3y)$
- D. $(x + y)(5x + 3y)$

11. Factorize $9x^4 - 6x^2y + y^2 - z^4 + 4z^2 - 4$.

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

B. $(3x^2 - y + z^2 - 2)(3x^2 - y - z^2 + 2)$

C. $(3x^2 - y - z^2 - 2)^2$

D. $(3x^2 - y - z^2 + 2)(3x^2 - y - z^2 - 2)$

12. Factorize $x^2 - 6x - 27$.

A. $(x - 9)(x - 3)$

B. $(x - 9)(x + 3)$

C. $(x + 9)(x + 3)$

D. $(x + 9)(x - 3)$

13. Factorize $x^2 + 2x - 35$.

A. $(x + 5)(x + 7)$

B. $(x - 5)(x - 7)$

C. $(x - 5)(x + 7)$

D. $(x + 5)(x - 7)$

14. Factorize $-x^2 + 5x + 36$.

A. $(x + 4)(9 - x)$

B. $(x + 4)(x + 9)$

C. $(x + 4)(x - 9)$

D. $(x - 4)(x + 9)$

15. Factorize $-5x + 3 - 2x^2$.

A. $(x + 3)(1 - 2x)$

B. $(x + 3)(2x - 1)$

C. $(x + 3)(2x + 1)$

D. $(x - 3)(2x + 1)$

16. Factorize $12 - 25t^2 - 20t$.

A. $(5t - 6)(2 - 5t)$

B. $(5t + 6)(2 - 5t)$

C. $(5t + 6)(5t + 2)$

D. $(5t - 6)(5t + 2)$

17. Factorize $(5x - y)^2 - 17x^2 - 13y^2$.
- A. $2(4x - 3y)(x + 2y)$
 - B. $2(4x + 3y)(x - 2y)$
 - C. $2(4x + 3y)(x + 2y)$
 - D. $2(4x - 3y)(x - 2y)$
18. Factorize $12m^2 - 12n(5m + 36n)$.
- A. $12(m - 4n)(m - 9n)$
 - B. $12(m - 9n)(m + 4n)$
 - C. $12(9n - m)(m - 4n)$
 - D. $12(m - 4n)(m + 9n)$
19. Factorize $(5x - 2)(6x - 1)x - 5x + 2$.
- A. $(5x - 2)(2x + 1)(3x - 1)$
 - B. $(5x - 2)(2x + 1)(3x + 1)$
 - C. $(5x - 2)(2x - 1)(3x - 1)$
 - D. $(5x - 2)(2x - 1)(3x + 1)$
20. Factorize $39m^2 - 82mn + 8n^2$.
- A. $(39m + 2n)(m + 4n)$
 - B. $(39m + 4n)(m + 2n)$
 - C. $(39m - 4n)(m - 2n)$
 - D. $(39m - 2n)(m - 4n)$
21. Factorize $10x^2 - 22xy + 4y^2$.
- A. $2(5x - y)(x + 2y)$
 - B. $2(5x - y)(x - 2y)$
 - C. $2(5x + y)(x + 2y)$
 - D. $2(5x + y)(x - 2y)$
22. Factorize $96q^2 - 12pq - 45p^2$.
- A. $3(4q - 15p)(8q + p)$
 - B. $3(4q - 3p)(8q + 5p)$
 - C. $3(4q + 15p)(8q - p)$
 - D. $3(4q + 5p)(8q - 3p)$

23. Factorize $8b^3 - c^3$.

- A. $(2b - c)^3$
- B. $(2b - c)(2b + c)^2$
- C. $(2b - c)(4b^2 - 2bc + c^2)$
- D. $(2b - c)(4b^2 + 2bc + c^2)$

24. Factorize $64\ell^3 + 1$.

- A. $(4\ell + 1)^3$
- B. $(4\ell + 1)(16\ell^2 - 4\ell + 1)$
- C. $(4\ell + 1)(16\ell^2 + 4\ell + 1)$
- D. $(4\ell - 1)(16\ell^2 + 4\ell - 1)$

25. Factorize $64d^3 - 27e^3$.

- A. $(4d - 3e)(16d^2 - 12de + 9e^2)$
- B. $(4d + 3e)(16d^2 - 12de + 9e^2)$
- C. $(4d - 3e)(16d^2 + 12de + 9e^2)$
- D. $(4d + 3e)(16d^2 + 12de - 9e^2)$

26. Factorize $y^5 + 27y^2$.

- A. $y^2(y + 3)^3$
- B. $(y + 3)(y^2 - 3y + 9)$
- C. $y^2(y + 3)(y^2 + 3y + 9)$
- D. $y^2(y + 3)(y^2 - 3y + 9)$

27. Factorize $a^3 - (a - 2b)^3$.

- A. $2b(3a^2 - 12ab + 4b^2)$
- B. $2b(3a^2 + 12ab + 4b^2)$
- C. $2b(3a^2 - 6ab + 4b^2)$
- D. $2b(3a^2 + 6ab + 4b^2)$

28. Factorize $(8x+3)^3 + (x-3)^3$.

- A. $27x(19x^2 - 21x + 9)$
- B. $27x(19x^2 + 21x + 9)$
- C. $27x(19x^2 - 21x - 9)$
- D. $27x(19x^2 + 21x - 9)$

29. Factorize $8xy^4 + 2(x+y)^2 - 2(x-y)^2$.

- A. $8xy(y+1)(y^2 - 2y + 1)$
- B. $8xy(y+1)(y^2 + 2y + 1)$
- C. $8xy(y+1)(y^2 - y + 1)$
- D. $8xy(y+1)(y^2 + y + 1)$

30. Factorize $4p^6q - 4q$.

- A. $4q(p-1)^2(p^4 + p^2 + 1)$
- B. $4q(p-1)^2(p^4 - p^2 + 1)$
- C. $4q(p+1)(p-1)(p^4 - p^2 + 1)$
- D. $4q(p+1)(p-1)(p^4 + p^2 + 1)$

Section A(1)

1. Factorize $15xy - 5y$.
2. Factorize $x^2 - 144$.
3. Factorize $3x^2y - 15x$.
4. Factorize $x^2 - 16y^2$.
5. Factorize $3x^2 - 27$.
6. Factorize $2m^2 - 32$.
7. Factorize $5x^2 - 125$.
8. Factorize $49 - 16a^2b^2$.
9. Factorize $mx - ny + nx - my$.
10. Factorize $6s + 4y - 3sr - 2yr$.

11. Factorize $18x^2 - 2y^2 + 6x - 2y$.

12. Factorize $x^2 - 3x + 2$.

13. Factorize $x^2 - 5x + 6$.

14. Factorize $x^2 - 18x + 65$.

15. Factorize $x^2 - 4x + 4$.

16. Factorize $4x^2 - 14x - 18$.

17. Factorize $2x^2 - 8x + 6$.

18. Factorize $2x^2 - 13x + 21$.

19. Factorize $2x^2 - 3x - 54$.

20. Factorize $-12 - 5x + 2x^2$.

21. Factorize $1 - y^3$.

22. Factorize $27x^3 - 64$.

23. Factorize $64x^3 - 8y^3$.

24. Factorize $125x^3 + 27y^3$.

Section A(2)

25. Factorize $36 - 60a + 25a^2$.

26. Factorize $9x^2 + 30x + 25$.

27. Factorize $4x^2 + 12x + 9$.

28. Factorize $x^2 - 2xy + y^2 - 4z^2$.

29. Factorize $(x^2 + 16x + 64) - (y + 2)^2$.

30. Factorize $x^4 - y^4$.

31. Factorize $49a^2 - 14a + 1 - 4x^2 + 4x - 1$.

32. Factorize $x^2 - 5xy + 6y^2$.

33. Factorize $x^4y - 10x^3y^2 + 25x^2y^3$.

34. Factorize $x^4 + x^2y^2 + y^4$.

35. (a) Factorize $25 - 10x + x^2$.

(b) Hence, factorize $25 - 10(n+1) + (n+1)^2$.

36. (a) Factorize $x^2 - 4x + 3$.

(b) Hence, factorize $(2x-3)^2 - 4(2x-3) + 3$.

37. Factorize $5 + 2x - 3x^2$.

38. Factorize $12x - 4x^2 - 9$.

39. Factorize $15x^2 - 27x - 54$.

40. Factorize $4ax^2 - 3ax - 52a$.

41. Factorize $2x^2 - 5xy + 2y^2$.

42. Factorize $12x^2 + 32xy + 16y^2$.

43. Factorize $axy^4 - ax^4y$.

44. Factorize $7xy^5 + 7x^4y^2$.

45. Factorize $(x + y)^3 - (x - y)^3$.

46. (a) Factorize $x^3 - 8$.

(b) Hence, factorize $x^3 - 6x + 4$.

Section B

47. Factorize $(x+1)^3 - x^3$.

48. Factorize $(8x^3 - y^3) + (2x - y)$.

49. (a) Factorize $25x^2 - 10x + 1$.

(b) Hence, factorize $25(x^2 - y^2) - 10x + 1$.

50. (a) Factorize $81x^2 + 90xy + 25y^2$.

(b) Hence, factorize $81(m-n)^2 + 90(m-n)(p+q) + 25(p+q)^2$.