



1. Factorize $(9a^2 + 18ab + 9b^2)$

- (i) $(-3a)(-3a)$ (ii) $(-3a-3b)(-3a-3b)$ (iii) $(-3a-6b)(-3a-5b)$ (iv) $(-4a-3b)(-4a-3b)$
(v) $(-2a-3b)(-2a-3b)$

2. Factorize $(x^2 + 7x + 6)$

- (i) $(x-6)(x-1)$ (ii) $(x+6)(x-1)$ (iii) $(x-6)(x+1)$ (iv) $(x+6)(x+1)$

3. Factorize $(a^6 - b^6)$

- (i) $(a-b)(a^2+ab+b^2)(a+b)(a^2+ab-b^2)$ (ii) $(a-b)(a^2+ab-b^2)(a+b)(a^2-ab+b^2)$
(iii) $(a-b)(a^2-ab+b^2)(a+b)(a^2-ab-b^2)$ (iv) $(a-b)(a^2+ab+b^2)(a+b)(a^2-ab-b^2)$
(v) $(a-b)(a^2+ab+b^2)(a+b)(a^2-ab+b^2)$

4. Factorize $a^2 - b^2 - c^2 - 2bc$

- (i) $(a-b-c)(a+b-c)$ (ii) $(a+b+c)(a+b-c)$ (iii) $(a-b-c)(a-b+c)$ (iv) $(a-b-c)(a+b+c)$
(v) $(a+b+c)(a-b+c)$

5. Factorize $(-6x^3 - 60x^2y - 162xy^2 - 108y^3)$

- (i) $(x+6y)(-x-3y)(6x-6y)$ (ii) $(x+6y)(-x-3y)(6x+6y)$ (iii) $(x-6y)(-x-3y)(6x+6y)$
(iv) $(x+6y)(-x+3y)(6x-6y)$ (v) $(x-6y)(-x-3y)(6x-6y)$

6. Factorize $(-27a^3 + 27b^3)$

- (i) $(-3a+5b)(9a^2+12ab+9b^2)$ (ii) $(-3a)(9a^2+7ab+9b^2)$ (iii) $(-2a+3b)(10a^2+9ab+9b^2)$
(iv) $(-3a+3b)(9a^2+9ab+9b^2)$ (v) $(-4a+3b)(8a^2+9ab+9b^2)$

7. Factorize $(x^4 + x^2y^2 + y^4)$

- (i) $(x^2 - xy + y^2)(x^2 + xy - y^2)$ (ii) $(x^2 + xy + y^2)(x^2 + xy - y^2)$ (iii) $(x^2 - xy + y^2)(x^2 - xy - y^2)$
(iv) $(x^2 - xy + y^2)(x^2 + xy + y^2)$ (v) $(x^2 + xy + y^2)(x^2 - xy - y^2)$

8. Factorize $(4a^2 + 12ab - 12ac + 9b^2 - 18bc + 9c^2)$

- (i) $(-2a-3b+3c)(-2a-3b+3c)$ (ii) $(-2a-6b+3c)(-2a-6b+3c)$ (iii) $(-2a+3c)(-2a-b+3c)$
(iv) $(-3a-3b+3c)(-3a-3b+3c)$ (v) $(-a-3b+3c)(-a-3b+3c)$

9. Factorize $(7x^4 + 448)$

- (i) $7(x^2 - 4x + 8)(x^2 + 4x - 8)$ (ii) $7(x^2 + 4x + 8)(x^2 - 4x - 8)$ (iii) $7(x^2 + 4x + 8)(x^2 + 4x - 8)$
(iv) $7(x^2 - 4x + 8)(x^2 + 4x + 8)$ (v) $7(x^2 - 4x + 8)(x^2 - 4x - 8)$

10. Find the value of $15^3 + 55^3 - 70^3$

- (i) (-27000) (ii) 1331000 (iii) 27000 (iv) (-1331000) (v) (-173250)

11. Factorize $(3x+6y)^2 - 2(3x+6y)(2x+9y) + (2x+9y)^2$

- (i) $(5x+15y)^2$ (ii) $3y^2$ (iii) $(2x-3y)^2$ (iv) $(x-3y)^2$ (v) $(3x+6y)(2x+9y)$

12. Factorize $(a+b)^2 - c^2$

- (i) $(a+b+c)(a-b-c)$ (ii) $(a+b+c)(a-b+c)$ (iii) $(a+b-c)(a-b+c)$ (iv) $(a+b-c)(a-b-c)$
(v) $(a+b+c)(a+b-c)$

13. Factorize $(18a^2b + 30ab^2)$

- (i) $6a(3a+5b)$ (ii) $6b(3a-5b)$ (iii) $6ab(-3a-5b)$ (iv) $6ab(3a+5b)$ (v) $6ab(3a-5b)$

14. Factorize $a^2c^2 - b^2c^2 - a^2d^2 + b^2d^2$

- (i) $(a+b)(a-b)(c+d)(c-d)$ (ii) $(a+b)(a-b)(c+d)(b-d)$ (iii) $(a+b)(a-c)(c+d)(c-d)$
(iv) $(a+c)(a-c)(b+d)(b-d)$ (v) $(a+b)(a-b)(b+d)(c-d)$

15. Factorize $(ax + by)^2 - (ax - by)^2$

- (i) $4(ax)^2(by)^2$ (ii) $2axby$ (iii) $4axby$ (iv) $2(ax)^2(by)^2$

16. Factorize $(x^4 + x^2 + 1)$

- (i) $(x^2 - x + 1)(x^2 + x - 1)$ (ii) $(x^2 - x + 1)(x^2 + x + 1)$ (iii) $(x^2 + x + 1)(x^2 - x - 1)$ (iv) $(x^2 + x + 1)(x^2 + x - 1)$
(v) $(x^2 - x + 1)(x^2 - x - 1)$

17. Which of the following is a factor of $(9x^2 + y^4z^3)$?

- (i) no factors (ii) y^4z^3 (iii) $3xz^3$ (iv) $9x^2$ (v) $3y$

18. Which of the following is an irreducible factor of $26x^3y^5z^2$?

- (i) xz^2 (ii) x (iii) y^4z (iv) $x^2y^4z^2$ (v) x^2y

19. In which of the cases, $g(x)$ is a factor of $f(x)$?

- (i) $f(x) = (-3x^3 - x^2 + 48x + 16), g(x) = (-x + 4)$ (ii) $f(x) = (-6x^3 - 35x^2 - 37x + 28), g(x) = (x + 1)$
(iii) $f(x) = (-18x^3 - 39x^2 + 10x + 7), g(x) = (x + 4)$ (iv) $f(x) = (-6x^3 - 17x^2 - 4x + 7), g(x) = (3x + 1)$
(v) $f(x) = (2x^3 - x^2 - 32x + 16), g(x) = (3x + 7)$

20. Which of the following is not an irreducible factor of $(x^2y + xy^2 + xy)$?

- (i) x (ii) xy (iii) y (iv) $(x+y+1)$

21. Factorize $(x^2 + 2xa + 2x + a^2 + 2a - 24)$

- (i) $(x-a-4)(x+a-6)$ (ii) $(x+a+6)(x+a-4)$ (iii) $(x-a+6)(x+a+4)$ (iv) $(x+a+6)(x-a-4)$
(v) $(x+a-4)(x-a+6)$

22. Factorize $(36x^2 - 100)$

- (i) $(6x+10)(6x-10)$ (ii) $(6x-4)(6x+25)$ (iii) $(6x-10)(6x-10)$ (iv) $(6x+10)(6x+10)$
(v) $(6x+4)(6x-25)$

23. Factorize $(2x^3 + 4x^2 - 38x - 40)$

- (i) $(x-4)(3x+5)(4x+2)$ (ii) $(x-4)(2x+5)(3x+2)$ (iii) $(x-4)5(x+2)$ (iv) $(x-4)(x+5)(2x+2)$
(v) $(x-4)(-2x+5)2$

24. Factorize $a^2 b^2 - b^2 c^2$

- (i) $(ac+bc)(ac-bc)$ (ii) $(ab+bc)(ab+bc)$ (iii) $(ab+bc)(ac+bc)$ (iv) $(ab+bc)(ab-bc)$
(v) $(ab-bc)(ab-bc)$

25. Factorize $(a^4 - 24a^2 - 432)$

- (i) $(a^2+12)(a^2-12)$ (ii) $(a-6)(a+6)(a+6)$ (iii) $(a-6)(a-6)(a+6)$ (iv) $(a-6)(a+6)(a^2+12)$
(v) $(a-6)(a+6)(a^2-12)$

Assignment Key

1) (ii)	2) (iv)	3) (v)	4) (iv)	5) (ii)	6) (iv)
7) (iv)	8) (i)	9) (iv)	10) (v)	11) (iv)	12) (v)
13) (iv)	14) (i)	15) (iii)	16) (ii)	17) (i)	18) (ii)
19) (i)	20) (ii)	21) (ii)	22) (i)	23) (iv)	24) (iv)
25) (iv)					

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