



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

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

2. Factorize  $(9a^2 + 24ab + 16b^2)$

- (i)  $(2a+4b)(2a+4b)$  (ii)  $(3a+6b)(3a+7b)$  (iii)  $(3a+2b)(3a+2b)$  (iv)  $(3a+4b)(3a+4b)$   
(v)  $(4a+4b)(4a+4b)$

3. Factorize  $(16a^2 - 9b^2)$

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

4. Factorize  $(-27a^3 - 81a^2b - 81ab^2 - 27b^3)$

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

5. Factorize  $(8a^3 - 12a^2b + 6ab^2 - b^3)$

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

6. Factorize  $(4a^2 + 20ab - 8ac + 25b^2 - 20bc + 4c^2)$

- (i)  $(a+5b-2c)(a+5b-2c)$  (ii)  $(2a+2b-2c)(2a+3b-2c)$  (iii)  $(2a+5b-2c)(2a+5b-2c)$   
(iv)  $(3a+5b-2c)(3a+5b-2c)$  (v)  $(2a+7b-2c)(2a+7b-2c)$

7. Factorize  $(-125a^3 - 125b^3)$

- (i)  $(-6a-5b)(24a^2 - 25ab + 25b^2)$  (ii)  $(-5a-3b)(25a^2 - 22ab + 25b^2)$   
(iii)  $(-5a-5b)(25a^2 - 25ab + 25b^2)$  (iv)  $(-5a-8b)(25a^2 - 27ab + 25b^2)$   
(v)  $(-4a-5b)(26a^2 - 25ab + 25b^2)$

8. Factorize  $(8a^3 - 27b^3)$

- (i)  $(2a-3b)(4a^2 + 6ab + 9b^2)$  (ii)  $(2a-6b)(4a^2 + 3ab + 9b^2)$  (iii)  $2a(4a^2 + 8ab + 9b^2)$   
(iv)  $(3a-3b)(5a^2 + 6ab + 9b^2)$  (v)  $(a-3b)(3a^2 + 6ab + 9b^2)$

9. Factorize  $(-64a^3 + 180abc - 27b^3 - 125c^3)$

(i)  $(-4a - 6b - 5c)(16a^2 - 14ab - 20ac + 9b^2 - 15bc + 25c^2)$

(ii)  $(-5a - 3b - 5c)(15a^2 - 12ab - 20ac + 9b^2 - 15bc + 25c^2)$

(iii)  $(-3a - 3b - 5c)(17a^2 - 12ab - 20ac + 9b^2 - 15bc + 25c^2)$

(iv)  $(-4a - 3b - 5c)(16a^2 - 12ab - 20ac + 9b^2 - 15bc + 25c^2)$

(v)  $(-4a - 5c)(16a^2 - 9ab - 20ac + 9b^2 - 15bc + 25c^2)$

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10. Evaluate :  $985^2 - 15^2$

(i) 97000 (ii) 970000 (iii) 970985 (iv) 970015 (v) 9700000

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11. Factorize  $(3x+8y)^2 + 2(3x+8y)(2x+6y) + (2x+6y)^2$

(i)  $(x+2y)^2$  (ii)  $(6x+14y)^2$  (iii)  $(3x+8y)(2x+6y)$  (iv)  $(5x+14y)^2$  (v)  $(-x-y)^2$

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12. Factorize  $(9x+6y)^2 - 2(9x+6y)(5x+2y) + (5x+2y)^2$

(i)  $(5x+4y)^2$  (ii)  $(4x+4y)^2$  (iii)  $(9x+6y)(5x+2y)$  (iv)  $(14x+8y)^2$  (v)  $(-3x-4y)^2$

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

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

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14. Factorize  $4a^3 - 64a$

(i)  $(2a+8)(2a-8)a$  (ii)  $(2a+8)(2a^2+8)a$  (iii)  $(2a-8)(2a^2+8)a$  (iv)  $(2a+8)(8a-2)a$   
(v)  $(2a^2+8)(8a-2)a$

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15. Factorize  $(x^2 - 81)$

(i)  $(x-27)(x+3)$  (ii)  $(x+27)(x-3)$  (iii)  $(x+9)(x-9)$  (iv)  $(x+9)(x+9)$  (v)  $(x-9)(x-9)$

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16. Factorize  $(9x^2 - 64)$

(i)  $(3x-8)(3x-8)$  (ii)  $(3x+8)(3x-8)$  (iii)  $(3x-16)(3x+4)$  (iv)  $(3x+8)(3x+8)$  (v)  $(3x+16)(3x-4)$

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17. Factorize  $(81x^2 - 16y^2)$

(i)  $(9x+4y)(9x-4y)$  (ii)  $(9x-2y)(9x+8y)$  (iii)  $(9x+2y)(9x-8y)$  (iv)  $(9x-4y)(9x-4y)$   
(v)  $(9x+4y)(9x+4y)$

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18. Find  $804^3$

(i) 519718474 (ii) 519718444 (iii) 519718454 (iv) 519718484 (v) 519718464

19. Find  $293^3$

- (i) 25153737 (ii) 25153767 (iii) 25153777 (iv) 25153747 (v) 25153757

20. Find the value of  $15^3 + 45^3 - 60^3$

- (i) (-27000) (ii) (-121500) (iii) 27000 (iv) 729000 (v) (-729000)

21. Find the value of  $6.6^3 + 4.2^3 - 10.8^3$

- (i) 592.704 (ii) -592.704 (iii) 2299.968 (iv) -898.128 (v) -2299.968

22. Factorize  $(a^4 - 1296)$

- (i)  $(a^2 + 36)(a^2 - 12)$  (ii)  $(a+6)(a+6)(a-6)$  (iii)  $(a+6)(a-6)(a^2 - 12)$  (iv)  $(a+6)(a-6)(a^2 + 36)$   
(v)  $(a+6)(a-6)(a-6)$

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

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

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

25. 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)  $(a-b)(a^2 + ab + b^2)(a+b)(a^2 - ab - b^2)$

26. Factorize  $(a-b)^3 + (b-c)^3 + (c-a)^3$

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

27. Factorize  $(5a-6b)^3 + (6b-5c)^3 + (5c-5a)^3$

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

28. Factorize  $(7a-7b)^3 - (a-3b)^3 - (6a-4b)^3$

- (i)  $3(a+3b)(6a+4b)(-5a+b)$  (ii)  $3(a-3b)(6a-4b)(7a-7b)$  (iii)  $3(a-3b)(6a+4b)(7a-7b)$   
(iv)  $3(a+3b)(6a-4b)(7a-7b)$  (v)  $3(a+3b)(6a+4b)(7a-7b)$

29. Factorize  $(20x^2 + 6xy - 8y^2)$

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

## Assignment Key

1) (v)	2) (iv)	3) (iv)	4) (i)	5) (v)	6) (iii)
7) (iii)	8) (i)	9) (iv)	10) (ii)	11) (iv)	12) (ii)
13) (i)	14) (i)	15) (iii)	16) (ii)	17) (i)	18) (v)
19) (v)	20) (ii)	21) (iv)	22) (iv)	23) (ii)	24) (iii)
25) (iii)	26) (v)	27) (i)	28) (ii)	29) (ii)	

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