

EduSahara™ Learning Center Assignment**Grade : Class IX, ICSE****Chapter : Factorisation****Name : Factorisation Using Identities**

1. Factorize ($25a^2 + 30ab + 9b^2$)

(i) ($-5a - 3b$) ($-5a - 3b$)

(ii) ($-4a - 3b$) ($-4a - 3b$)

(iii) ($-5a - b$) ($-5a - b$)

(iv) ($-6a - 3b$) ($-6a - 3b$)

(v) ($-5a - 6b$) ($-5a - 6b$)

2. Factorize ($9a^2 + 6ab + b^2$)

(i) ($3a - 2b$) ($3a - b$)

(ii) ($3a + b$) ($3a + b$)

(iii) ($4a + b$) ($4a + b$)

(iv) ($2a + b$) ($2a + b$)

(v) ($3a + 4b$) ($3a + 3b$)

3. Factorize ($25a^2 - 9b^2$)

(i) ($5a + 3b$) ($5a - 3b$)

(ii) ($5a + b$) ($5a - 6b$)

(iii) ($6a + 3b$) ($6a - 3b$)

(iv) ($5a + 6b$) ($5a - b$)

(v) ($4a + 3b$) ($4a - 3b$)

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

(i) ($-3a - 3b$) ($-3a - 3b$) ($-3a - 3b$)

(ii) ($-4a - 3b$) ($-4a - 3b$) ($-4a - 3b$)

(iii) ($-2a - 3b$) ($-2a - 3b$) ($-2a - 3b$)

(iv) ($-3a - 5b$) ($-3a - 6b$) ($-3a - 5b$)

(v) $(-3a - b)(-3a - b)(-3a - b)$

5. Factorize $(-64a^3 - 192a^2b - 192ab^2 - 64b^3)$

(i) $(-3a - 4b)(-3a - 4b)(-3a - 4b)$

(ii) $(-4a - 2b)(-4a - 2b)(-4a - 2b)$

(iii) $(-5a - 4b)(-5a - 4b)(-5a - 4b)$

(iv) $(-4a - 4b)(-4a - 4b)(-4a - 4b)$

(v) $(-4a - 6b)(-4a - 6b)(-4a - 7b)$

6. Factorize $(4a^2 - 16ab + 8ac + 16b^2 - 16bc + 4c^2)$

(i) $(-2a + b - 2c)(-2a + 2b - 2c)$

(ii) $(-3a + 4b - 2c)(-3a + 4b - 2c)$

(iii) $(-2a + 4b - 2c)(-2a + 4b - 2c)$

(iv) $(-2a + 7b - 2c)(-2a + 6b - 2c)$

(v) $(-a + 4b - 2c)(-a + 4b - 2c)$

7. Factorize $(8a^3 + 125b^3)$

(i) $(2a + 8b)(4a^2 - 7ab + 25b^2)$

(ii) $(2a + 2b)(4a^2 - 13ab + 25b^2)$

(iii) $(3a + 5b)(5a^2 - 10ab + 25b^2)$

(iv) $(2a + 5b)(4a^2 - 10ab + 25b^2)$

(v) $(a + 5b)(3a^2 - 10ab + 25b^2)$

8. Factorize $(-a^3 + 64b^3)$

(i) $(-a + 6b)(a^2 + 6ab + 16b^2)$

(ii) $(-2a + 4b)(4ab + 16b^2)$

(iii) $(-a + b)(a^2 + ab + 16b^2)$

(iv) $(-a + 4b)(a^2 + 4ab + 16b^2)$

$$(v) \quad 4b(2a^2 + 4ab + 16b^2)$$

9. Factorize $(64a^3 + 72abc + 8b^3 - 27c^3)$

$$(i) \quad (4a + 2b - 3c)(16a^2 - 8ab + 12ac + 4b^2 + 6bc + 9c^2)$$

$$(ii) \quad (4a + 5b - 3c)(16a^2 - 5ab + 12ac + 4b^2 + 6bc + 9c^2)$$

$$(iii) \quad (3a + 2b - 3c)(15a^2 - 8ab + 12ac + 4b^2 + 6bc + 9c^2)$$

$$(iv) \quad (5a + 2b - 3c)(17a^2 - 8ab + 12ac + 4b^2 + 6bc + 9c^2)$$

$$(v) \quad (4a - 3c)(16a^2 - 10ab + 12ac + 4b^2 + 6bc + 9c^2)$$

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

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

11. Factorize $(8x+7y)^2 + 2(8x+7y)(5x+6y) + (5x+6y)^2$

$$(i) \quad (13x+13y)^2$$

$$(ii) \quad (8x+7y)(5x+6y)$$

$$(iii) \quad (14x+13y)^2$$

$$(iv) \quad (-3x)^2$$

$$(v) \quad (3x+y)^2$$

12. Factorize $(4x+5y)^2 - 2(4x+5y)(8x+2y) + (8x+2y)^2$

$$(i) \quad (4x+5y)(8x+2y)$$

$$(ii) \quad (-4x+3y)^2$$

$$(iii) \quad (12x+7y)^2$$

$$(iv) \quad (-3x+3y)^2$$

$$(v) \quad (5x-3y)^2$$

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

$$(i) \quad (ab + bc)(ab + bc)$$

$$(ii) \quad (ab + bc)(ac + bc)$$

(iii) $(ab - bc)(ab - bc)$

(iv) $(ab + bc)(ab - bc)$

(v) $(ac + bc)(ac - bc)$

14. Factorize $49a^3 - 81a$

(i) $(7a + 9)(7a - 9)a$

(ii) $(7a - 9)(7a^2 + 9)a$

(iii) $(7a^2 + 9)(9a - 7)a$

(iv) $(7a + 9)(7a^2 + 9)a$

(v) $(7a + 9)(9a - 7)a$

15. Factorize $(x^2 - 36)$

(i) $(x + 6)(x + 6)$

(ii) $(x + 18)(x - 2)$

(iii) $(x + 6)(x - 6)$

(iv) $(x - 18)(x + 2)$

(v) $(x - 6)(x - 6)$

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

(i) $(6x - 50)(6x + 2)$

(ii) $(6x + 50)(6x - 2)$

(iii) $(6x + 10)(6x - 10)$

(iv) $(6x - 10)(6x - 10)$

(v) $(6x + 10)(6x + 10)$

17. Factorize $(64x^2 - 36y^2)$

(i) $(8x - 6y)(8x - 6y)$

(ii) $(8x + 6y)(8x + 6y)$

(iii) $(8x + 6y)(8x - 6y)$

(iv) $(8x + 2y)(8x - 18y)$

(v) $(8x - 2y)(8x + 18y)$

18. Find 108^3

(i) 1259712 (ii) 1259692 (iii) 1259702 (iv) 1259722 (v) 1259732

19. Find 797^3

(i) 506261593 (ii) 506261553 (iii) 506261573 (iv) 506261563 (v) 506261583

20. Find the value of $25^3 + 60^3 - 85^3$

(i) 1728000 (ii) (-1728000) (iii) 125000 (iv) (-125000) (v) (-382500)

21. Find the value of $2.6^3 + 5.4^3 - 8^3$

(i) -336.96 (ii) -1259.712 (iii) 1259.712 (iv) -140.608 (v) 140.608

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

(i) $(f + 6)(f - 6)(f - 6)$

(ii) $(f + 6)(f - 6)(f^2 - 12)$

(iii) $(f^2 + 36)(f^2 - 12)$

(iv) $(f + 6)(f + 6)(f - 6)$

(v) $(f + 6)(f - 6)(f^2 + 36)$

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

(i) $(a + b + c)(a + b - c)$

(ii)

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

$$(iii) (a + b + c)(a - b - c)$$

$$(iv) (a + b + c)(a - b + c)$$

$$(v) (a + b - c)(a - b + c)$$

$$24. \text{ Factorize } a^2c^2 - b^2c^2 - a^2d^2 + b^2d^2$$

$$(i) (a + b)(a - b)(c + d)(c - d)$$

$$(ii) (a + b)(a - c)(c + d)(c - d)$$

$$(iii) (a + b)(a - b)(b + d)(c - d)$$

$$(iv) (a + c)(a - c)(b + d)(b - d)$$

$$(v) (a + b)(a - b)(c + d)(b - d)$$

$$25. \text{ Factorize } (a^6 - b^6)$$

$$(i) (a - b)(a^2 - ab + b^2)(a + b)(a^2 - ab - b^2)$$

$$(ii) (a - b)(a^2 + ab - b^2)(a + b)(a^2 - ab + b^2)$$

$$(iii) (a - b)(a^2 + ab + b^2)(a + b)(a^2 + ab - b^2)$$

$$(iv) (a - b)(a^2 + ab + b^2)(a + b)(a^2 - ab - b^2)$$

$$(v) (a - b)(a^2 + ab + b^2)(a + b)(a^2 - ab + b^2)$$

$$26. \text{ Factorize } (a-b)^3 + (b-c)^3 + (c-a)^3$$

$$(i) 3(a - b)(b + c)(c + a)$$

$$(ii) 3(a + b)(b - c)(c - a)$$

$$(iii) 3(a - b)(b + c)(c - a)$$

$$(iv) 3(a - b)(b - c)(c - a)$$

$$(v) 3(a - b)(b - c)(c + a)$$

$$27. \text{ Factorize } (4a-5b)^3 + (5b-c)^3 + (c-4a)^3$$

$$(i)$$

$$3 (4 a - 5 b) (5 b - c) (c + 4 a)$$

(ii) $3 (4 a - 5 b) (5 b + c) (c - 4 a)$

(iii) $3 (4 a - 5 b) (5 b - c) (c - 4 a)$

(iv) $3 (4 a + 5 b) (5 b - c) (c - 4 a)$

(v) $3 (4 a - 5 b) (5 b + c) (c + 4 a)$

28. Factorize $(10a-9b)^3 - (5a-5b)^3 - (5a-4b)^3$

(i) $3 (5 a - 5 b) (5 a + 4 b) (10 a - 9 b)$

(ii) $3 (5 a + 5 b) (5 a + 4 b) (10 a - 9 b)$

(iii) $3 (5 a + 5 b) (5 a - 4 b) (10 a - 9 b)$

(iv) $3 (5 a - 5 b) (5 a - 4 b) (10 a - 9 b)$

(v) $3 (5 a + 5 b) (5 a + 4 b) (- b)$

29. Factorize $(3 x^2 + 4 x y - 15 y^2)$

(i) $(x + 3 y) (3 x + 5 y)$

(ii) $(x + 3 y) (3 x - 5 y)$

(iii) $(x + 3 y) (x + 3 y)$

(iv) $(x - 3 y) (3 x - 5 y)$

(v) $(x - 3 y) (3 x + 5 y)$

Assignment Key

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