

**EduSahara™ Learning Center Assignment****Grade : Class IX, ICSE****Chapter : Factorisation****Name : Factorisation by Grouping**

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1. Factorize  $(2x^2 - 15x + 7)$

(i)  $(2x - 1)(-2x - 7)$

(ii)  $(2x - 1)(-7)$

(iii)  $(2x - 1)(2x - 7)$

(iv)  $(2x - 1)(3x - 7)$

(v)  $(2x - 1)(x - 7)$ 

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2. Factorize  $(4x^3 - 16x^2 - 28x + 40)$

(i)  $(x - 5)4(-x - 2)$

(ii)  $(x - 5)(3x + 4)(3x - 2)$

(iii)  $(x - 5)(x + 4)(x - 2)$

(iv)  $(x - 5)(2x + 4)(2x - 2)$

(v)  $(x - 5)(4x + 4)(5x - 2)$ 

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3. Factorize  $(x^4 - x^3 - 57x^2 + 5x + 700)$

(i)  $(x + 5)(2x + 5)(2x - 4)(2x - 7)$

(ii)  $(x + 5)(4x + 5)(3x - 4)(4x - 7)$

(iii)  $(x + 5)(-x + 5)(-2x - 4)(-2x - 7)$

(iv)  $(x + 5)(x + 5)(x - 4)(x - 7)$

(v)  $(x + 5)5(-4)(-7)$ 

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4. Factorize  $(x^2 + 2xa + 6x + a^2 + 6a - 16)$

(i)  $(x + a + 8)(x - a - 2)$

(ii)  $(x + a + 8)(x + a - 2)$

(iii)  $(x - a - 2)(x + a - 8)$

(iv)  $(x - a + 8)(x + a + 2)$

(v)  $(x + a - 2)(x - a + 8)$

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5. Factorize  $(x^3 + 3x^2a + 3xa^2 - x + a^3 - a)$

(i)  $(x - a)(x + a - 1)(x - a + 1)$

(ii)  $(x + a)(x - a - 1)(x + a + 1)$

(iii)  $(x + a)(x + a - 1)(x - a + 1)$

(iv)  $(x - a)(x - a - 1)(x + a + 1)$

(v)  $(x + a)(x + a - 1)(x + a + 1)$

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6. Factorize  $(9x^2 + 66xy + 21y^2)$

(i)  $(x + 7y)(x - 7y)$

(ii)  $(x - 7y)(9x + 3y)$

(iii)  $(x - 7y)(9x - 3y)$

(iv)  $(x + 7y)(9x + 3y)$

(v)  $(x + 7y)(9x - 3y)$

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7. Factorize  $(75x^3 - 250x^2y + 275xy^2 - 100y^3)$

(i)  $(3x + 4y)(-5x + 5y)(-5x - 5y)$

(ii)  $(3x + 4y)(-5x + 5y)(-5x + 5y)$

(iii)  $(3x - 4y)(-5x - 5y)(-5x - 5y)$

(iv)  $(3x - 4y)(-5x + 5y)(-5x - 5y)$

(v)  $(3x - 4y)(-5x + 5y)(-5x + 5y)$

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8. Which of the following is a factor of  $40xy^5z^3$  ?

(i)  $x^2y^3$  (ii)  $4xy^3z^4$  (iii)  $4xy^6$  (iv)  $4xy^3$

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9. Which of the following is not a factor of  $7x^2yz^5$  ?

- (i)  $xyz^5$  (ii)  $x^2yz^4$  (iii)  $x^2z^5$  (iv)  $x^2y^2z^5$  (v) 1
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10. Which of the following is a factor of  $(8x^3 + y^5z^4)$  ?

- (i) no factors (ii)  $8x^3z^4$  (iii)  $y^5z^4$  (iv)  $8y$  (v)  $8x^3$
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11. Which of the following is an irreducible factor of  $3x^2y^5z^2$  ?

- (i)  $x^2y$  (ii)  $z$  (iii)  $xz^2$  (iv)  $y^5z$  (v)  $x^2y^5z^2$
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12. Which of the following is not an irreducible factor of  $(x^2y + xy^2 + xy)$  ?

- (i)  $y$  (ii)  $xy$  (iii)  $(x + y + 1)$  (iv)  $x$
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13. Factorize  $(x^2 + 13x + 40)$

(i)  $(x + 8)(x - 5)$

(ii)  $(x - 8)(x - 5)$

(iii)  $(x + 8)(x + 5)$

(iv)  $(x - 8)(x + 5)$

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

(i)  $f(x) = (4x^3 - 16x^2 + 11x + 10)$ ,  $g(x) = (-x + 4)$

(ii)  $f(x) = (2x^3 - 33x^2 + 127x + 72)$ ,  $g(x) = (-x + 8)$

(iii)  $f(x) = (-2x^3 + 17x^2 - 46x + 40)$ ,  $g(x) = (-x + 9)$

(iv)  $f(x) = (4x^3 - 40x^2 + 59x + 40)$ ,  $g(x) = (-x + 2)$

(v)  $f(x) = (-2x^3 + 27x^2 - 91x + 90)$ ,  $g(x) = (2x + 1)$

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15. Factorize  $(b^4 - 8b^2 + 16)$

(i)  $(b^2 + 4b + 4)(b^2 - 4b - 4)$

(ii)  $(b^2 + 4b + 4)(b^2 + 4b - 4)$

(iii)  $(b^2 + 4b + 4)(b^2 - 4b + 4)$

(iv)  $(b^2 + 4b - 4)(b^2 - 4b + 4)$

(v)  $(b^2 + 4b - 4)(b^2 - 4b - 4)$

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16. Factorize  $(n^4 - 8n^2 - 128)$

(i)  $(n - 4)(n + 4)(n^2 - 8)$

(ii)  $(n - 4)(n + 4)(n^2 + 8)$

(iii)  $(n - 4)(n + 4)(n + 4)$

(iv)  $(n^2 + 8)(n^2 - 8)$

(v)  $(n - 4)(n - 4)(n + 4)$

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

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18. Factorize  $(x^4 + 1024)$

(i)  $(x^2 - 8x + 32)(x^2 - 8x - 32)$

(ii)  $(x^2 - 8x + 32)(x^2 + 8x - 32)$

(iii)  $(x^2 + 8x + 32)(x^2 + 8x - 32)$

(iv)  $(x^2 - 8x + 32)(x^2 + 8x + 32)$

(v)  $(x^2 + 8x + 32)(x^2 - 8x - 32)$

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19. Factorize  $(4x^4 + 10000)$

(i)  $4(x^2 + 10x + 50)(x^2 + 10x - 50)$

(ii)  $4(x^2 - 10x + 50)(x^2 + 10x - 50)$

(iii)  $4(x^2 - 10x + 50)(x^2 - 10x - 50)$

(iv)  $4(x^2 - 10x + 50)(x^2 + 10x + 50)$

(v)  $4(x^2 + 10x + 50)(x^2 - 10x - 50)$

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20. 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)  $(x^2 - x + 1)(x^2 + x - 1)$

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21. 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)  $(x^2 + xy + y^2)(x^2 - xy - y^2)$

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

$$(v) \quad (x^2 - xy + y^2) (x^2 + xy + y^2)$$

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22. Factorize  $(x^3 - 3x^2 + 3x - 9)$

$$(i) \quad (x - 3) (x - 3) (x + 3)$$

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

$$(iii) \quad (x + 3) (x^2 + 3)$$

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23. Factorize  $(x^3 + 3x^2 + 3x + 28)$

$$(i) \quad (x - 4) (x^2 + x + 7)$$

$$(ii) \quad (x - 4) (x^2 - x + 7)$$

$$(iii) \quad (x + 4) (x^2 - x + 7)$$

$$(iv) \quad (x + 4) (x + 4) (x - 4)$$

$$(v) \quad (x + 4) (x^2 + x + 7)$$

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24. Factorize  $(x^4 - 5x^3 + 5x^2 + 5x - 6)$

$$(i) \quad (x - 3) (x - 1) (x - 2) (x + 3)$$

$$(ii) \quad (x - 3) (x - 1) (x - 2) (x + 2)$$

$$(iii) \quad (x - 3) (x - 1) (x + 2) (x + 3)$$

$$(iv) \quad (x - 3) (x - 1) (x - 2) (x + 1)$$

$$(v) \quad (x - 3) (x - 1) (x + 1) (x + 2)$$

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25. Factorize  $(6x^2 - 4xy - 10y^2)$

(i)  $(2x + 2y)(3x + 5y)$

(ii)  $(2x + 2y)(3x - 5y)$

(iii)  $(2x - 2y)(3x - 5y)$

(iv)  $(2x - 2y)(3x + 5y)$

(v)  $(2x + 2y)(2x + 2y)$

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26. Factorize  $(x^6 + 35x^3 + 216)$

(i)  $(x + 3)(x^2 - 2x + 4)(x + 2)(x^2 - 2x + 4)$

(ii)  $(x - 3)(x^2 - 3x + 9)(x + 2)(x^2 - 2x + 4)$

(iii)  $(x + 3)(x^2 - 3x + 9)(x - 2)(x^2 - 2x + 4)$

(iv)  $(x - 3)(x^2 - 3x + 9)(x - 2)(x^2 - 2x + 4)$

(v)  $(x + 3)(x^2 - 3x + 9)(x + 2)(x^2 - 2x + 4)$

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27. Factorize  $(12xy + 24y^2)$

(i)  $3x(4x - 8y)$

(ii)  $3y(4x + 8y)$

(iii)  $3x(4x + 8y)$

(iv)  $3y(-4x - 8y)$

(v)  $3y(4x - 8y)$

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28. Factorize  $(42a^2b + 12ab^2)$

(i)  $6ab(-7a - 2b)$

(ii)  $6ab(7a - 2b)$

(iii)  $6b(7a - 2b)$

(iv)

$$6a(7a + 2b)$$

$$(v) \quad 6ab(7a + 2b)$$

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29. Factorize  $(x^4 - 5x^2 + 6)$

$$(i) \quad (x^2 - 3)(x^2 + 3)$$

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

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

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

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

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**Assignment Key**

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