


UNIT 7 :

Factorization

Level 1

1 Factorize $3ab^3 + 6a^2b - 12a$.

A $3ab(b^2 + 2a - 4)$

B $3ab(b^2 + 2a - 4b)$ 


C $3a(b^2 + 2a - 4)$

D $3a(b^3 + 2a - 4)$

E $3a(b^3 + 2ab - 4)$

2 $ax + by - ay - bx =$

A $(x - y)(a - b)$

B $(x - y)(a + b)$ 


C $(x + y)(a - b)$

D $(x + y)(a + b)$

E $(y - x)(a - b)$

3 Factorize $49m^2 + 28mn + 4n^2$.

A $(7m - 2n)^2$

B $(7m + 2n)^2$ 


C $(7m + n)^2$

D $(14m - 2n)^2$

E $(14m + 2n)^2$

4 $(2x + 1)^2 - (3y - 2)^2 =$

A $(2x + 3y)(2x - 3y)$

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

C $(2x + 3y + 1)(2x - 3y - 3)$

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

E $(2x + 3y + 1)(2x + 3y + 3)$


5 Which of the following is a factor of $(2a + 3b)^2 - 1$?

A $2a + 3b$

B $2a + 3b - 5$


C $2a + 3b - 1$

D $2a + 3b + 3$

E $2a + 5$ 

6 Factorize $2x^3 - 7x^2 + 5x$.


A $(2x - 5)(x - 1)$


B $(2x - 1)(x - 5)$ 


C $x(2x - 1)(x - 5)$

D $x(2x - 5)(x - 1)$




E $x(2x + 5)(x + 1)$


- 7 Factorize $x^4 - 3x^2y^2 + 2y^4$.
- | | | | |
|---|---|---|------------------------------|
| A | $(x^2 + y^2)(x^2 - 2y^2)$ | D | $(x + y)(x - y)(x^2 + 2y^2)$ |
| B | $(x^2 + y^2)(x^2 + 2y^2)$  | E | $(x + y)(x - y)(x^2 - 2y^2)$ |
| C | $(x + y)(x - y)(x^2 + y^2)$ | | |


- 8 $27a^3 + 8b^{-3} =$
- | | | | |
|---|---|---|--|
| A | $(3a + 2b)(9a^2 - 6ab + 4b^2)$ | D | $(3a + \frac{2}{b})(9a^2 - \frac{12a}{b} + \frac{4}{b^2})$ |
| B | $(3a + 2b)(9a^2 - 12ab + 4b^2)$  | E | $(3a + \frac{2}{b})^3$ |
| C | $(3a + \frac{2}{b})(9a^2 - \frac{6a}{b} + \frac{4}{b^2})$ | | |


- 9 Which of the following does not have $(a - b)$ as a factor?
- | | | | |
|---|--------------------|---|---|
| A | $a^2 + b^2$ | D | $a^3 - b^3$ |
| B | $a^2 - b^2$ | E | $a^3 - 3a^2b + 2b^3$  |
| C | $a^2 - 3ab + 2b^2$ | | |


Level 2


- 10 Factorize $a^2 - b^2 + 3b - 3a$.
- | | | | |
|---|--|---|----------------------|
| A | $(a + b + 3)(a - b)$ | D | $(a - b + 3)(a + b)$ |
| B | $(a + b - 3)(a - b)$  | E | $(a - b - 3)(a + b)$ |
| C | $(a + b - 3)(a + b)$ | | |
- 11 Factorize $3x^{n+1} - 2x^n - x^{n-1}$.
- | | | | |
|---|---|---|--------------------------|
| A | $(3x + 1)(x - 1)$ | D | $x^{n-1}(3x + 1)(x - 1)$ |
| B | $(3x^n + 1)(x - 1)$  | E | $x^{n-1}(3x - 1)(x - 1)$ |
| C | $x^{n-1}(3x - 1)(x + 1)$ | | |
- 12 Factorize $(m^2 - 6m + 9) - (4n^2 + 4n + 1)$.
- | | | | |
|---|----------------------------|---|--|
| A | $(m + 2n - 2)(m - 2n - 4)$ | D | $(m + 2n + 4)(m - 2n - 2)$ |
| B | $(m + 2n - 4)(m - 2n - 2)$ | E | $(m + 2n - 3)(m - 2n - 1)$  |
| C | $(m + 2n + 2)(m - 2n - 4)$ | | |


- 13 $x^2(x-y) + y^2(y-x) =$
- | | | | |
|---|--|---|----------------------|
| A | $(x^2 + y^2)(x - y)$ | D | $(x + y)(x - y)^2$ |
| B | $(x^2 + y^2)(y - x)$  | E | $(x + y)^2(x - y)^2$ |
| C | $(x + y)^2(x - y)$ | | |

- 14 Factorize $(x-2)^4 - (2x-3)^4$.
- | | |
|---|---|
| A | $(3x-5)^2(x-1)^2$ |
| B | $(3x^2 - 8x + 13)(x-2)(2x-3)$  |
| C | $(5x^2 - 16x + 13)(3x+5)(x+1)$ |
| D | $(5x^2 - 16x + 13)(3x-5)(x-1)$ |
| E | $(5x^2 - 16x + 13)(3x-5)(1-x)$ |

- 15 Factorize $a^2 + 6ab + 9b^2 - 4a - 12b$.
- | | | | |
|---|--|---|------------------|
| A | $(a+3b)(a-3b-4)$ | D | $(a-3b)(a+3b-4)$ |
| B | $(a+3b)(a+3b+4)$ | E | $(a-3b)(a-3b+4)$ |
| C | $(a+3b)(a+3b-4)$  | | |

- 16 $(x-y)(x^2 + xy + y^2) - 7y^3 =$
- | | | | |
|---|--|---|----------------------------|
| A | $(x-2y)(x+y)^2$ | D | $(x+2y)(x^2 - 2xy + 4y^2)$ |
| B | $(x-2y)(x+2y)^2$  | E | None of the above. |
| C | $(x-2y)(x^2 + 2xy + 4y^2)$ | | |

- 17 Which of the following is not a factor of $a^6 - b^6$?
- | | | | |
|---|-------------|---|---|
| A | $a - b$ | D | $a^2 + ab + b^2$ |
| B | $a + b$ | E | $a^2 - ab + b^2$ |
| C | $a^2 + b^2$ | |  |

- 18 $2x^4y^3 + 16xy^6 + 2x^2y^3 + 4xy^4 =$
- | | |
|---|---|
| A | $2xy^3(x+2y)(x^2 - 2xy + 4y^2 + 1)$ |
| B | $2xy^3(x+2y)(x^2 + 2xy + 4y^2 + 1)$  |
| C | $2xy^3(x+2y)(x^2 - 2xy + 4y^2)$ |
| D | $2xy^3(x+2y)(x-2y)^2$ |
| E | $2xy^3(x+2y)^3$ |