



MATHS

BOOKS - ARIHANT PUBLICATION

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FACTORISATION OF POLYNOMIALS

Solved Examples

1. The factor form $4(3a - 2b)^2 - 5(3a - 2b)$ is

A. $(3a - 26)[12a - 8b - 5]$

B. $(2a - 3b)[12a - 8b - 5]$

C. $(3a - 2b)(8a - 12b - 5)$

D. $(3a - 2b)[5a - 8b - 12]$

Answer: A



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2. The factor form $xy + yz + xa + za$ is

A. $xz + ya$

B. $(x + z)(y + a)$

C. $xy + za$

D. $(x + a)(y + z)$

Answer: B



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3. The factor form $16x^2 - 8x + 1$ is

A. $(4x - 1)^2$

B. $(2x - 2)^2$

C. $(3x - 2)^2$

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

Answer: A



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4. The factor form $x^4 + x^2y^2 + y^4$ is

A. $(x^2 + y^2 + xy)(x^2 + y^2 + xy)$

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

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

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

Answer: D



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5. The factor form $x^2 + 9x + 14$ is

A. $(x + 7)(x + 2)$

B. $(x - 7)(x + 2)$

C. $(2x + 7)(3x + 3)$

D. $(x + 3)(x + 4)$

Answer: A



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6. The factor form $(2x + 3y)^3 - (2x - 3y)^3$ is

A. $18y(4x^2 + 3y^2)$

B. $18y(4x - 3y)$

C. $18y^2(4x + 3y)$

D. $18y(4x^2 - 3y^2)$

Answer: A



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Exam Booster For Cracking Exam

1. The factor form $5x^2 - 20xy$ is

A. $5x(x - 4y)$

B. $10x(x - 2y)$

C. $5(x^2 - 2y)$

D. None of these

Answer: A



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2. The factor form $5x(y + z) - 7y(y + z)$ is

A. $(5x - 7y)(y - z)$

B. $(5x - 7y)(y + z)$

C. $(5x + 7y)(y + z)$

D. $(5x + 7y)(y - z)$

Answer: B



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3. If $\left(x + \frac{1}{x}\right) = 6$, then $\left(x^2 + \frac{1}{x^2}\right)$ is equal to

A. 32

B. 38

C. 34

D. 44

Answer: C



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4. The factor form $y^2 + 3y + y + 3$ is

A. $(y + 1)(y + 3)$

B. $y^2 + 3^2$

C. $(y^2 + 3)^2$

D. $(y + 2)(y + 1)$

Answer: A



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5. The factor form $z^2 + \frac{1}{z^2} + 2 - 2z - \frac{2}{z}$ is

A. $\left(z + \frac{1}{z} + 2\right)\left(z - \frac{1}{z}\right)$

B. $\left(z + \frac{1}{z}\right)\left(z + \frac{1}{z} - 2\right)$

C. $\left(z - \frac{1}{z} + 2\right)\left(z + \frac{1}{z}\right)$

D. $\left(z - \frac{1}{z}\right)\left(z - \frac{1}{z} - 2\right)$

Answer: B



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6. The factor form $8 - 4z - 2x^3 + x^4$ is

A. $(2 - x)(4 - x^3)$

B. $(2 + x)(4 - x^3)$

C. $(2 + x)(4 + x^3)$

D. $(2 - x)(4 + x^3)$

Answer: A



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7. The factor form $x^2 - 2\sqrt{3}x + 3$ is

A. $(x + \sqrt{3})^2$

B. $(x - \sqrt{3})^2$

C. $(x + \sqrt{3})(x - \sqrt{3})$

D. $(x + 2)(x + \sqrt{3})$

Answer: B



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8. The factor form $(a^4b^4 - 16c^4)$ is

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

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

C. $(a^2b^2 + 4c^2)(ab - 2c)(ab - 2c)$

D. $(a^2b^2 - 4c^2)(ab - 2c)(ab + 4c)$

Answer: C



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9. If $\left(x + \frac{1}{x}\right) = \sqrt{3}$, then the value of $\left(x^3 + \frac{1}{x^3}\right)$ will be

A. $3\sqrt{3}$

B. $3(\sqrt{3} - 1)$

C. 0

$$D. 3(\sqrt{3} + 1)$$

Answer: C



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10. If 'a' is an integer such that

$$\left(a + \frac{1}{a}\right) = \frac{17}{4}, \text{ then the value of } \left(a - \frac{1}{a}\right)$$

is

A. 4

B. $\frac{13}{4}$

C. $\frac{17}{4}$

D. $\frac{15}{4}$

Answer: D



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11. What are the factors of $(a^3 - 2\sqrt{2}b^3)$?

A. $(a - \sqrt{2}b)(a^2 + \sqrt{2}ab + 2b)$

B. $(a - \sqrt{2}b)(a^2 + \sqrt{2}ab + 2b^2)$

C. $(a - \sqrt{2}b)(a^2 + \sqrt{2}ab + b^2)$

D. None of these

Answer: B



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12. What are the factors of $32x^4 - 500x$?

A. $4x(2x - 5)(4x^2 + 10x + 25)$

B. $4x(2x - 5)(4x^2 + 10x + 5)$

C. $4x(2x - 5)(x^2 + 10x + 25)$

D. None of the above

Answer: A



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13. What are the factors of $[(a - b) - a^3 + b^3]$

?

A. $(a - b)(1 - a^2 - b^2 + ab)$

B. $(a - b)(1 - a^2 + b^2 - ab)$

C. $(a - b)(1 - a^2 - b^2 - ab)$

D. None of these

Answer: C



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14. What are the factors of

$$(a - b)^3 + (b - c)^3 + (c - a)^3 ?$$

A. $3(a - b)(b - c)(a - c)$

B. $3(a - b)(c - b)(c - a)$

C. $3(a - b)(c - b)(c - a)$

D. None of these

Answer: C



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15. What are the factors of

$$\left[(5a - 7b)^3 + (9c - 5a)^3 + (7b - 9c)^3 \right] ?$$

A. $3(5a - 7b)(9c - 5a)(7b - 9c)$

B. $3(5a - 7b)(9c - 5a)(b - 9c)$

C. $(5a - 7b)(9c - 5a)(7b - 9c)$

D. None of the above

Answer: A



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16. What is the remainder when $(4x^3 - 3x^2 + 2x - 1)$ is divided by $(x + 2)$?

A. 49

B. -49

C. 9

D. -32

Answer: B



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17. What is the remainder when $12x^3 - 13x^2 - 5x + 7$ is divided by $(3x + 2)$?

A. 1

B. 2

C. 3

D. 4

Answer: A



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18. What are the factors of $\left(\frac{1}{3}x^2 - 2x - 9\right)$?

A. $\frac{1}{3}(x + 3)(x - 9)$

B. $\frac{1}{3}(x + 3)(x + 9)$

C. $(x + 3)(x - 9)$

D. None of these

Answer: A



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19. What are the factors of

$$(6\sqrt{3}x^2 - 47x + 5\sqrt{3})?$$

A. $(2x - 5\sqrt{3})(1 - 3\sqrt{3}x)$

B. $(2x - 5\sqrt{3})(3\sqrt{x} - 1)$

C. $(2x - 5\sqrt{3})(3x - 1)$

D. $(2x - 5\sqrt{3})(3\sqrt{3}x - 1)$

Answer: D



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20. What must be added to $\frac{1}{x}$ to make it equal to x ?

A. $\frac{x^2 - 1}{x}$

B. $\frac{x^2 + 1}{x}$

C. $\frac{1}{x}$

D. None of these

Answer: A



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21. If $a + b + c = 10$ and $ab + bc + ac = 31$, then the value of $a^2 + b^2 + c^2$ is

A. 28

B. 100

C. 62

D. 38

Answer: D



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22. The factors of $(x^4 + x^2 + 25)$ are

A. $(x^2 + 5 - 3x)(x^2 + 5x - 3)$

B. $(x^2 + 5 - 3x)(x^2 + 5 + 3x)$

C. $(x^2 + 5 - 3x)(x^2 + 5 - 3x)$

D. None of these

Answer: B



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23. The factors of $8a^3 + b^3 - 6ab + 1$ are

$$(2a + b - 1)(4a^2 + b^2 + 1 - 3ab - 2a)$$

$$(2a - b + 1)(4a^2 + b^2 - 4ab + 1 - 2a + b)$$

$$(2a + b + 1)(4a^2 + b^2 + 1 - 2ab - b - 2a)$$

$$(2a - 1 + b)(4a^2 + 1 - 4a - b - 2ab)$$

A.

$$(2a + b + 1)(4x^2 + b^2 + 1 - 2ab - b - a)$$

B.

$$(2a + b + 1)(4a^2 + a^2 + 1 - 2ab - b - 2a)$$

C.

$$(2a + b + 1)(4a^2 + b^2 + 1 - 2ab - b - 2a)$$

D. None of the above

Answer: C



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24. The factors of

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

are

A. $(x - 1)(x + 3)(x^2 + 2x + y)$

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

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

D. None of the above

Answer: D



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25. The factors of $x^2 + \frac{1}{4x^2} + 1 - 2x - \frac{1}{x}$ are

A. $\left(x + \frac{1}{x}\right)\left(x + \frac{1}{2x} - 2\right)$

B. $\left(x + \frac{1}{2x}\right)\left(x + \frac{1}{2x} - 2\right)$

C. $\left(x + \frac{1}{2x}\right)\left(x + \frac{1}{x} - 2\right)$

D. None of these

Answer: B



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26. The factors of $x^4 - 14x^2y^2 - 51y^4$

A. $(x + \sqrt{17}y)(x - \sqrt{17}y)(x^2 + 3y^2)$

B. $(x + \sqrt{7}y)(x - \sqrt{17}y)(x^2 + 3y^2)$

C. $(x + \sqrt{17}y)(x - \sqrt{17}y)(x^2 + y^2)$

D. None of the above

Answer: A



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27. The remainder when $4a^3 - 12a^2 + 14a - 3$

is divided by $2a - 1$ is

A. $\frac{1}{2}$

B. $\frac{7}{2}$

C. $\frac{3}{2}$

D. None of these

Answer: C



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28. If the polynomials $(2x^3 + ax^2 + 3x - 5)$ and $(x^3 + x^2 - 2x + a)$ leave the same remainder when divided by $x-2$, then the value of a is

A. -3

B. -2

C. 3

D. 2

Answer: A



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29. The factors of $4x^3 + 23x^2 - 41x - 42$ are

A. $(2x - 7)(x + 7)(4x + 3)$

B. $(x-2)(x+7)(4x+3)$

C. $(x-2)(x+7)(x+4)$

D. None of these

Answer: B



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30. If $(x^3 + ax^2 + bx + 6)$ has $(x - 2)$ as a factor and leaves a remainder 3, when divided by $(x - 3)$, then the values of 'a' and 'b' are

A. $-3, 1$

B. $-3, -1$

C. $-3, 0$

D. None of these

Answer: B



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