



MATHS

BOOKS - RS AGGARWAL MATHS (HINGLISH)

FACTORISATION

Example

1. Factorise each of the

$$5x + 20$$

$$2n^2 + 3n$$



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2. Factorise: $2n^2 + 3n$

A. $n(2n^2 + 3)$

B. $n^2(2n + 3)$

C. $n(2n + 3)$

D. $n(2n - 3)$

Answer: C



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3. Factorize each of the following algebraic

expressions: $3x + 15$ (ii) $2x^2 + 5x$

$3x^2y - 6xy^2$ (iv) $6x^3 + 8x^2y$



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4. Factorise each of the

$6ab - 9ab$



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5. Factorise:

$$18a^3 - 27a^2b$$

A. $9a^2(2a - 3b)$

B. $9a(2a - 3b)$

C. $9a^2(2b - 3a)$

D. $9a(2b - 3a)$

Answer: A



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6. Factorles:

$$12a^2b - 9ab^2 + 6ab$$

A. $3ab(4a + 3b + 2)$

B. $3ab(4a - 3b - 2)$

C. $3ab(4a - 3b + 2)$

D. $3ab(4a + 3b - 2)$

Answer: C



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7. Factorise:

$$5a(2x - 3y) + 2b(2x - 3y)$$

A. $(2x - 3y)(5a - 2b)$

B. $(2x - 3y)(5a + 2b)$

C. $(2x + 3y)(5a + 2b)$

D. $(2x + 3y)(5a - 2b)$

Answer: B



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8. Factorise:

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

A. $4(4x - 5y)(8x + 10y - 3)$

B. $4(4x + 5y)(8x + 10y + 3)$

C. $4(4x + 5y)(8x + 10y - 3)$

D. none of these

Answer: C



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9. Factorise:

$$a^2 + bc + ab + ac$$



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10. Factorise:

$$ax^2 + by^2 + bx^2 + ay^2$$



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11. Factorise:

$$1 + a + ac + a^2c$$

A. $(1 - a)(1 + ac)$

B. $(1 + a)(1 + ac)$

C. $a(1 + ac)$

D. None of these

Answer: B



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12. Factorise:

$$xy - pq + qy - px$$



13. Fractorise: $ab(x^2 + y^2) + xy(a^2 + b^2)$.

A. $(bx - ay)(ax + by)$

B. $(bx + ay)(ax + by)$

C. $(bx + ay)(ax - by)$

D. $(bx - ay)(ax - by)$

Answer: B



Solved Examples

1. Factorise $49x^2 - 16y^2$.



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2. Factorise: $64 - x^2$

A. $(8 + x)(8 - x)$

B. $(8 - x)(8 - x)$

C. $(8 + x)(8 + x)$

D. none of these

Answer: A



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3. Factorise: $y^2 - 121$



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4. Factorise: $48a^2 - 243b^2$

A. $3(4a - 9b)(4a + 9b)$

B. $3(4a + 9b)(4b + 9b)$

C. $3(4a - 9b)(4a - 9b)$

D. $3(9b - 4a)(9b + 4a)$

Answer: A



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5. Factorise: $x^3 - 25x$

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

B. $x(x - 5)(x - 5)$

C. $x(x + 5)(x - 5)$

D. none of these

Answer: C



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6. Factorise: $3x^2 - 48$

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

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

C. $3(x + 4)(x - 4)$

D. none of these

Answer: C



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7. Factorise: $25(x + y)^2 - 36(x - 2y)^2$.



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8. Factorise:

$$4x^2 - y^2 + 6y - 9.$$



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9. Evaluate:

$$(502)^2 - (498)^2$$

A. 4000

B. 6000

C. 7000

D. 8000

Answer: A



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10. Evaluate:

$$(8.6)^2 - (1.4)^2$$



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11. Factorise:

$$x^2 + 10x + 25$$



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12. Factorise:

$$x^2 - 20x + 100$$



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13. Factorise:

$$4x^2 + 9y^2 + 12xy$$

A. $= (2x - 3y)^2$

B. $= (2x + 3y)(2x - 3y)$

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

D. $= (2x + 3y)^3$

Answer: C



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14. Factorise:

$$a^4 + 25b^4 - 10a^2b^2$$

A. $(a^2 - 25b^2)^2$

B. $(a^2 - b^2)^2$

C. $(a^2 + 5b^2)^2$

D. $(a^2 - 5b^2)^2$

Answer: D



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15. Factorise:

$$x^2 + 8x + 15$$

A. $= (x - 5)(x - 3)$

B. $= (x + 5)(x - 3)$

C. $= (x - 5)(x + 3)$

D. $= (x + 5)(x + 3)$

Answer: D



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16. Factorise:

$$x^2 + 15x + 56$$



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17. Factorise:

$$x^2 - 7x + 12$$



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18. Factorise:

$$x^2 + x - 56$$



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19. Factorise:

$$2x^2 + 9x + 10$$



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



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21. Factorise:

$$15x^2 - 26x + 8$$



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22. Factorise:

$$3x^2 - 4x - 4$$



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1. Fractorise:

$$12x + 15$$



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2. Fractorise:

$$14m - 21$$

A. $5(2m - 3)$

B. $4(2m - 3)$

C. $7(2m - 3)$

D. $9(2m - 3)$

Answer: C



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3. Factorise:

$$9n - 12n^2$$



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4. Factorise:

$$16a^2 - 24ab$$

A. $4a(2a - 3b)$

B. $8a(2a - 3b)$

C. $8a(4a - 3b)$

D. $8a(2a - 9b)$

Answer: B



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5. Factorise:

$$15ab^2 - 20a^2b$$

A. $5ab(3b - 4a)$

B. $6ab(3b - 4a)$

C. $5ab(7b - 4a)$

D. $5ab(3b - 5a)$

Answer: A



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6. Factorise:

$$12x^2y^3 - 21x^3y^2$$



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7.

$$24x^3 - 36x^2y$$



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8. Factorise:

$$10x^3 - 15x^2$$



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9. Factorise:

$$36x^3y - 60x^2y^3z$$



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10. Factorise:

$$9x^3 - 6x^2 + 12x$$



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11. Factorise:

$$8x^2 - 72xy + 12x$$



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12. Factorise:

$$18a^3b^3 - 27a^2b^3 + 36a^3b^2$$

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

B. $9a^2b^2(2ab - 3b + 4a)$

C. $9a^2b^2(2ab + 3b - 4a)$

D. $9a^2b^2(ab - 3b + 4a)$

Answer: B



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13. Factorise:

$$14x^3 + 21x^4y - 28x^2y^2$$



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14. Factorise:

$$-5 - 10t + 20t^2$$

A. $-5(5 + 2t - 4t^2)$

B. $-10(1 + 2t - 4t^2)$

C. $-5(1 + 2t - 4t^2)$

D. $-5(1 + 2t - 10t^2)$

Answer: C



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15. Factorise:

$$x(x + 3) + 5(x + 3)$$



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16. Fractorise:

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



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17. Fractorise:

$$2m(1 - n) + 3(1 - n)$$



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18. Factorise:

$$6a(a - 2b) + 5b(a - 2b)$$



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19. Fractorise:

$$x^3(2a - b) + x^2(2a - b)$$



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20. Factorise:

$$9a(3a - 5b) - 12a^2(3a - 5b)$$



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21. Factorise:

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



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22. Factorise:

$$3(a - 2b)^2 - 5(a - 2b)$$



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23. Fractorise:

$$2a + 6b - 3(a + 3b)^2$$



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24. Fractorise:

$$16(2p - 3q)^2 - 4(2p - 3q)$$



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25. Fractorise:

$$x(a - 3) + y(3 - a)$$



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26. Fractorise:

$$12(2x - 3y)^2 - 16(3y - 2x)$$



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27. Fractorise:

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



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28. Factorise:

$$ar + br + at + bt$$



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29. Factorise:

$$x^2 - ax - bx + ab$$



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30. Factorise:

$$ab^2 - bc^2 - ab + c^2$$



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31. Factorise:

$$x^2 - xz + xy - yz$$



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32. Factorise:

$$6ab - b^2 + 12ac - 2bc$$



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33. Factorise:

$$(x - 2y)^2 + 4x - 8y$$



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34. Factorise:

$$y^2 - xy(1 - x) - x^3$$



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35. Fractorise:

$$(ax + by)^2 + (bx - ay)^2$$



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36. Fractorise:

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



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37. Fractorise:

$$x^3 - 3x^2 + x - 3$$



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38. Factorise:

$$ab(x^2 + y^2) - xy(a^2 + b^2)$$



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39. Fractorise:

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



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Exercise 7 B

1. Factorise: $x^2 - 36$



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2. Fractorise:

$$4a^2 - 9$$



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3. Fractorise:

$$81 - 49x^2$$





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4. Fractorise:

$$4x^2 - 9y^2$$



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5. Factorise:

$$16a^2 - 225b^2$$



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6. Fractorise:

$$9a^2b^2 - 25$$



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7. Fractorise:

$$16s^2 - 144$$



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8. Fractorise:

$$63a^2 - 112b^2$$



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9. Fractorise:

$$20a^2 - 45b^2$$



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10. Fractorise:

$$12x^2 - 27$$



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11. Fractorise:

$$x^3 - 64x$$



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12. Fractorise:

$$16x^5 - 144x^3$$



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13. $3x^5 - 48x^3$





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14. Fractorise:

$$16p^3 - 4p$$



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15. Fractorise:

$$63a^2b^2 - 7$$



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16. Fractorise:

$$1 - (b - c)^2$$



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17. Fractorise:

$$(2a + 3b)^2 - 16c^2$$



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18. Fractorise:

$$(l + m)^2 - (l - m)^2$$



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19. Factorise:

$$(2x + 5y)^2 - 1$$



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20. Fractorise:

$$36c^2 - (5a + b)^2$$



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21. Fractorise:

$$(3x - 4y)^2 - 25z^2$$



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22. Fractorise:

$$x^2 - y^2 - 2y - 1$$



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23. Fractorise:

$$25 - a^2 - b^2 - 2ab$$



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24. Fractorise:

$$25a^2 - 4b^2 + 28bc - 49c^2$$



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25. Fractorise:

$$9a^2 - b^2 + 4b - 4$$



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26. Fractorise:

$$100 - (x - 5)^2$$



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27. Evaluate

$$\{(405)^2 - (395)^2\}.$$



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28. Evaluate

$$\{(7.8)^2 - (2.2)^2\}.$$



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1. Factories:

$$x^2 + 8x + 16$$



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2. Factories:

$$x^2 + 14x + 49$$



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3. Factories:

$$1 + 2x + x^2$$



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4. Factories:

$$9 + 6z + z^2$$



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5. Factories:

$$x^2 + 6ax + 9a^2$$



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6. Factories:

$$4y^2 + 20y + 25$$



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7. Factories:

$$36a^2 + 36a + 9$$



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8. Factorise:

$$9m^2 + 24m + 16$$



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9. Factorize

$$z^2 + z + \frac{1}{4}$$

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

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

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

D. none of these

Answer: A



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10. Factorise $49a^2 + 84ab + 36b^2$



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11. Factorise:

$$p^2 - 10p + 25$$



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12. Factorise

$$121a^2 - 88ab + 16b^2$$



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13. Factories:

$$1 - 6x + 9x^2$$



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14. Factories:

$$9y^2 - 12y + 4$$



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15. Factories:

$$16x^2 - 24x + 9$$



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16. Factorise:

$$m^2 - 4mn + 4n^2$$



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17. Factories:

$$a^2b^2 - 6abc + 9c^2$$



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18. Factories:

$$m^4 + 2m^2n^2 + n^4$$

A. $(m^2 + n)^2$

B. $(m^2 + n^2)(m^2 - n^2)$

C. $(m^2 + n^2)^2$

D. none of these

Answer: C



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19. Factories:

$$(l + m)^2 - 4lm$$

A. $(l + m - 2lm)(l + m + 2lm)$

B. $(l + m)^2$

C. $(l - m)^2$

D. none of these

Answer: C



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Exercise 7 D

1. Factorise:

$$x^2 + 5x + 6$$



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2. Factorise:

$$y^2 + 10y + 24$$



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3. Factorise:

$$z^2 + 12z + 27$$



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4. Factorise:

$$p^2 + 6p + 8$$



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5. Factorise:

$$x^2 + 15x + 56$$



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6. Factorise:

$$y^2 + 19y + 60$$



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7. Factorise:

$$x^2 + 13x + 40$$



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8. Factorise:

$$q^2 - 10q + 21$$



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9. Factorise:

$$p^2 + 6p - 16$$



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10. Factorise:

$$x^2 - 10x + 24$$



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11. Factorise:

$$x^2 - 23x + 42$$



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12. Factorise:

$$x^2 - 17x + 16$$



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13. Factorise:

$$y^2 - 21y + 90$$



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14. Factorise:

$$x^2 - 22x + 117$$



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15. Factorise:

$$x^2 - 9x + 20$$



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16. Factorise:

$$x^2 + x - 132$$



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17. Factorise:

$$x^2 + 5x - 104$$



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18. Factorise:

$$y^2 + 7y - 144$$



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19. Factorise:

$$z^2 + 19z - 150$$



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20. Factorise:

$$y^2 + y - 72$$



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21. Factorise:

$$a^2 + 6a - 91$$



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22. Factorise:

$$p^2 - 4p - 77$$



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23. Factorise:

$$x^2 - 7x - 30$$



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24. Factorise:

$$x^2 - 11x - 42$$



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25. Factorise:

$$x^2 - 5x - 24$$

A. $(x - 8)(x - 3)$

B. $(x - 8)(x + 3)$

C. $(x + 8)(x + 3)$

D. none of these

Answer: B



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26. Factorise:

$$y^2 - 6y - 135$$



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27. Factorise:

$$z^2 - 12z - 45$$



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28. Factorise:

$$x^2 - 4x - 12$$



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29. Factorise:

$$3x^2 + 10x + 8$$



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30. Factorise:

$$3y^2 + 14y + 8$$



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31. Factorise:

$$3z^2 - 10z + 8$$



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32. Factorise:

$$2x^2 + x - 45$$



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33. Factorise:

$$6p^2 + 11p - 10$$



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34. Factorise:

$$2x^2 - 17x - 30$$



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35. Factorise:

$$7y^2 - 19y - 6$$



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36. Factorise:

$$28 - 31x - 5x^2$$



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37. Factorise:

$$3 + 23z - 8z^2$$



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38. Factorise:

$$6x^2 - 5x - 6$$



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39. Factorise:

$$3m^2 + 24m + 36$$



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40. Factorise:

$$4n^2 - 8n + 3$$



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41. Factorise:

$$6x^2 - 17x - 3$$



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42. Factorise:

$$7x^2 - 19x - 6$$



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Exercise 7 E

1. $(7a^2 - 63b^2) = ?$

A. $(7a - 9b)(9a + 7b)$

B. $(7a - 9b)(7a + 9b)$

C. $9(a - 3b)(a + 3b)$

D. $7(a - 3b)(a + 3b)$

Answer: D



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2. $(2x - 32x^3) = ?$

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

B. $2x(1 - 2x)^2$

C. $2x(1 + 2x)^2$

D. $2x(1 - 4x)(1 + 4x)$

Answer: D



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3. $x^3 - 144x = ?$

A. $x(x - 12)^2$

B. $x(x + 12)^2$

C. $x(x - 12)(x + 12)$

D. none of these

Answer: *C*



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4. $(2 - 50x^2) = ?$

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

B. $2(1 + 5x)^2$

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

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

Answer: D



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5. $a^2 + bc + ab + ac = ?$

A. $(a + b)(a + c)$

B. $(a + b)(b + c)$

C. $(b + c)(c + a)$

D. $a(a + b + c)$

Answer: A



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6. $pq^2 + q(p - 1) - 1 = ?$

A. $(pq + 1)(q - 1)$

B. $p(1 + 1)(q - 1)$

C. $q(p - 1)(q + 1)$

D. $(pq - 1)(q + 1)$

Answer: D



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7. $ab - mn + an - bm = ?$

A. $(a - b)(m - n)$

B. $(a - m)(b + n)$

C. $(a - n)(m + b)$

D. $(m - a)(n - b)$

Answer: B



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8. $ab - a - b + 1 = ?$

A. $(a - 1)(b - 1)$

B. $(1 - a)(1 - b)$

C. $(a - 1)(1 - b)$

D. $(1 - a)(b - 1)$

Answer: A



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9. $x^2 - xz + xy - yz = ?$

A. $(x - y)(x + z)$

B. $(x - y)(x - z)$

C. $(x + y)(x - z)$

D. $(x - y)(z - x)$

Answer: C



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10. $(12m^2 - 27) = ?$

A. $(2m - 3)(3m - 9)$

B. $2(2m - 9)(3m - 1)$

C. $3(2m - 3)(2m + 3)$

D. none of these

Answer: C



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11. $x^3 - x = ?$

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

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

C. $x(1 + x)(1 - x)$

D. $x(x + 1)(x - 1)$

Answer: D



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12. $1 - 2ab - (a^2 + b^2) = ?$

A. $(1 + a - b)(1 + a + b)$

B. $(1 + a + b)(1 - a + b)$

C. $(1 + a + b)(1 - a - b)$

D. $(1 + a - b)(1 - a + b)$

Answer: *C*



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13. $x^2 + 6x + 8 = ?$

A. $(x + 3)(x + 5)$

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

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

D. $(x + 1)(x + 8)$

Answer: C



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14. $x^2 + 4x - 21 = ?$

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

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

C. $(x - 7)(x - 3)$

D. $(x + 7)(x + 3)$

Answer: B



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15. $y^2 + 2y - 3 = ?$

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

B. $(y + 1)(y - 3)$

C. $(y - 1)(y - 3)$

D. $(y + 2)(y - 3)$

Answer: A



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16. $40 + 3x - x^2 = ?$

A. $(x + 5)(x - 8)$

B. $(5 - x)(8 - x)$

C. $(5 + x)(x - 8)$

D. $(5 - x)(8 - x)$

Answer: C



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17. $2x^2 + 5x + 3 = ?$

A. $(x + 3)(2x + 1)$

B. $(x + 1)(2x + 3)$

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

D. none of these

Answer: B



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18. $6a^2 - 13a + 6 = ?$

A. $(2a + 3)(3a - 2)$

B. $(2z + 1)(3 - 2x)$

C. $(3a - 2)(2a - 3)$

D. $((3a + 1)(2a - 3)$

Answer: C



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19. $4z^2 - 8z + 3 = ?$

A. $(2z - 1)(2z - 3)$

B. $(2z + 10)(3 - 2z)$

C. $(2z + 3)(3z - 1)$

D. $(z - 1)(4z - 3)$

Answer: A



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20. $3 + 23y - 8y^2 = ?$

A. $(1 - 8y)(3 + y)$

B. $(1 + 8y)(3 - y)$

C. $(1 - 8y)(y - 3)$

D. $(8y - 1)(y + 3)$

Answer: B



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