

## Factorisation

### Common Factor

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|------------------|-------------------|-------------------|------------------|
| 1. $x^2 + 4x$    | 2. $x^2 - 6x$     | 3. $x^2 + 9x$     | 4. $x^2 - 10x$   |
| 5. $7x - x^2$    | 6. $12x + x^2$    | 7. $2x - x^2$     | 8. $15x - x^2$   |
| 9. $a^2 - 5a$    | 10. $c^2 + 8c$    | 11. $g^2 - 14g$   | 12. $11p - p^2$  |
| 13. $2x^2 - 4x$  | 14. $5x^2 + 10x$  | 15. $3n^2 - 9n$   | 16. $2g^2 + 8g$  |
| 17. $5n^2 - 15n$ | 18. $4d + 6d^2$   | 19. $8n + 12n^2$  | 20. $3f + 15f^2$ |
| 21. $7a^2 - 14a$ | 22. $2w - 12w^2$  | 23. $7c + 21c^2$  | 24. $5u^2 - 20u$ |
| 25. $6x^2 - 9x$  | 26. $4y - 14y^2$  | 27. $10n^2 + 15n$ | 28. $5p^2 - 35p$ |
| 29. $8m - 12m^2$ | 30. $10h + 12h^2$ |                   |                  |

### Difference of two squares

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|---------------------|--------------------|---------------------|--------------------|
| 1. $x^2 - 4$        | 2. $x^2 - 9$       | 3. $x^2 - 25$       | 4. $x^2 - 100$     |
| 5. $64 - x^2$       | 6. $49 - x^2$      | 7. $1 - x^2$        | 8. $36 - x^2$      |
| 9. $a^2 - 16$       | 10. $c^2 - 81$     | 11. $2g^2 - 18$     | 12. $4p^2 - 36$    |
| 13. $2x^2 - 50$     | 14. $5x^2 - 5$     | 15. $3n^2 - 75$     | 16. $2g^2 - 200$   |
| 17. $12 - 3n^2$     | 18. $18 - 2p^2$    | 19. $8 - 8u^2$      | 20. $x^2 - y^2$    |
| 21. $p^2 - q^2$     | 22. $4p^2 - 49$    | 23. $16 - 25c^2$    | 24. $36 - 81w^2$   |
| 25. $4x^2 - 9y^2$   | 26. $9p^2 - 16q^2$ | 27. $25m^2 - 81n^2$ | 28. $2p^2 - 8q^2$  |
| 29. $6x^2 - 6y^2$   | 30. $45m^2 - 5n^2$ | 31. $3c^2 - 27d^2$  | 32. $6h^2 - 24k^2$ |
| 33. $10a^2 - 40c^2$ | 34. $63u^2 - 7v^2$ | 35. $5x^2 - 80y^2$  |                    |

## Trinomials

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|----------------------|----------------------|----------------------|----------------------|
| 1. $x^2 - 4x + 4$    | 2. $x^2 + 11x + 30$  | 3. $x^2 - 7x - 18$   | 4. $x^2 + 4x - 12$   |
| 5. $x^2 - 10x + 24$  | 6. $x^2 - 3x - 18$   | 7. $x^2 + 5x - 36$   | 8. $x^2 - 2x - 24$   |
| 9. $a^2 - 8a + 16$   | 10. $x^2 - 4x - 32$  | 11. $d^2 - 3d - 10$  | 12. $g^2 + 5g - 50$  |
| 13. $h^2 + 7h + 6$   | 14. $n^2 + 5n - 6$   | 15. $p^2 + p - 42$   | 16. $u^2 - 3u - 70$  |
| 17. $y^2 + y - 12$   | 18. $n^2 - 6n + 8$   | 19. $w^2 - 2w - 63$  | 20. $x^2 - x - 2$    |
| 21. $h^2 - 3h - 54$  | 22. $d^2 + 2d - 35$  | 23. $x^2 + 15x + 50$ | 24. $y^2 - 2y - 99$  |
| 25. $2x^2 - 5x - 3$  | 26. $5p^2 - 17p + 6$ | 27. $2x^2 + 9x - 5$  | 28. $2x^2 - 7x - 15$ |
| 29. $3u^2 - u - 4$   | 30. $7a^2 + 9a + 2$  | 31. $5m^2 - 6m + 1$  | 32. $3c^2 + 17c - 6$ |
| 33. $7p^2 + 5p - 2$  | 34. $5h^2 - 12h + 4$ | 35. $2x^2 - 5x - 7$  | 36. $5x^2 - 6x - 8$  |
| 37. $3x^2 - 2x - 21$ | 38. $7x^2 + 6x - 16$ | 39. $5u^2 + 6u - 27$ | 40. $2p^2 + 7p - 22$ |
| 41. $3x^2 + 25x + 8$ | 42. $2x^2 - 13x + 6$ | 43. $5x^2 - 4x - 12$ | 44. $7m^2 + 6m - 16$ |
| 45. $6x^2 - 7x + 2$  | 46. $10a^2 + 3a - 4$ | 47. $8x^2 - 10x + 2$ | 48. $6x^2 + 3x - 3$  |
| 49. $4c^2 + 5c - 6$  | 50. $10 - 3a - a^2$  | 51. $20 + 3x - 2x^2$ | 52. $5 + 14x - 3x^2$ |
| 53. $6n^2 + 23n - 4$ | 54. $8x^2 - 10x + 3$ | 55. $9p^2 - 3p - 6$  |                      |

## Mixed Examples

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|----------------------|----------------------|-----------------------|-----------------------|
| 1. $x^2 - 4x$        | 2. $x^2 + 12x + 35$  | 3. $a^2 - 36$         | 4. $x^2 + 5x - 14$    |
| 5. $x^2 - 12x + 32$  | 6. $x^2 - 9x - 36$   | 7. $5x^2 + 60$        | 8. $x^2 - 8x - 20$    |
| 9. $a^2 - 14a + 40$  | 10. $x^2 + 10x - 24$ | 11. $2d^2 + 9d - 5$   | 12. $3g^2 - 48$       |
| 13. $h^2 + 15h + 14$ | 14. $n^2 + 6n - 16$  | 15. $5p^2 - 2p - 7$   | 16. $2u^2 - 18w^2$    |
| 17. $y^2 + 7y - 18$  | 18. $n^2 - 24n + 80$ | 19. $w^2 - 3w - 54$   | 20. $6x - 10x^2$      |
| 21. $h^2 + 7h - 30$  | 22. $d^2 - 9c^2$     | 23. $x^2 + 19x + 60$  | 24. $9y^2 - 18y$      |
| 25. $3y^2 - 12$      | 26. $5p^2 - 2p - 16$ | 27. $2x^2 + 32x$      | 28. $2x^2 - 32$       |
| 29. $3u^2 + 5u - 8$  | 30. $18x^2 - 50y^2$  | 31. $6m^2 - 23m - 4$  | 32. $3c + 18c^2$      |
| 33. $7p^2 + 3p - 4$  | 34. $5 - 20h^2$      | 35. $2x^2 + 11x - 21$ | 36. $30 - x - x^2$    |
| 37. $3x^2 - 4x - 15$ | 38. $2u - 14u^2$     | 39. $5m^2 - 20n^2$    | 40. $2p^2 + 13p - 24$ |
| 41. $9x^2 - 12x$     | 42. $2x^2 - 2x - 4$  | 43. $5x^2 - 9x - 18$  | 44. $7m^2 - 63n^2$    |

45.  $6x^2 - 24y^2$       46.  $10a^2 - 9a - 7$       47.  $4x^2 + 23x - 6$       48.  $6x^2 - 11x + 4$   
49.  $4c + 10c^2$       50.  $15 + 9x - 6x^2$

## Fractions

1. (a) Factorise  $x^2 - 4x$       (b) Hence simplify  $\frac{x^2 - 4x}{x^2 - 16}$
2. (a) Factorise  $x^2 + 8x$       (b) Hence simplify  $\frac{x^2 + 8x}{x^2 + 7x - 8}$
3. (a) Factorise  $2a^2 + 6a$       (b) Hence simplify  $\frac{2a^2 + 6a}{a^2 - 9}$
4. (a) Factorise  $3p^2 - 21p$       (b) Hence simplify  $\frac{3p^2 - 21p}{3p^2 - 20p - 7}$
5. (a) Factorise  $u^2 - 36$       (b) Hence simplify  $\frac{u^2 - 36}{u^2 - 13u + 42}$
6. (a) Factorise  $n^2 + 6n - 16$       (b) Hence simplify  $\frac{n^2 + 6n - 16}{2n^2 - 8}$
7. (a) Factorise  $3x^2 + 8x - 3$       (b) Hence simplify  $\frac{3x^2 + 8x - 3}{9x^2 - 1}$
8. (a) Factorise  $x^2 + 3x - 10$       (b) Hence simplify  $\frac{x^2 + 3x - 10}{2x^2 - 50}$
9. (a) Factorise  $x^2 - 4x - 32$       (b) Hence simplify  $\frac{x^2 - 4x - 32}{2x^2 + 9x + 4}$
10. (a) Factorise  $3c^2 - c - 10$       (b) Hence simplify  $\frac{3c^2 - c - 10}{4c^2 - 7c - 2}$