

Chapter Review Exercises ^[A-2]

Factor completely:

- | | |
|------------------------|--------------------------------------|
| 1. $3y^2 + 13y + 4$ | 12. $256 - y^4$ |
| 2. $2p^2 - 2pq - 4q^2$ | 13. $42 - 5x - 3x^2$ |
| 3. $2 + 3x - 2x^2$ | 14. $25 - 26y^2 + y^4$ |
| 4. $p^2 - 16q^2$ | 15. $24k^2 + 47k + 20$ |
| 5. $75 - 12y^2$ | 16. $18b^2 - 54b + 40$ |
| 6. $25a^4 - 1$ | 17. $3a^2 + 70a + 200$ |
| 7. $144z^4 - 16$ | 18. $x^4 - 8x^2 + 16$ |
| 8. $7 - 23a + 6a^2$ | 19. $45x^2 - 51xy - 12y^2$ |
| 9. $2x^2 - 8xy + 8y^2$ | 20. $45x^2 + 21xy - 12y^2$ |
| 10. $4x^2 - 49y^2$ | 21. $2(x - m) + a(x - m)$ |
| 11. $9 - 4q^2$ | 22. $r(a + 2) + 6(a + 2) - 2(a + 2)$ |

Chapter Review Exercises ^[B]

Do not work
any from this
section

Factor completely:

- | | |
|-----------------------------------|------------------------------------|
| 1. $a^2 + ab + ac + bc$ | 12. $y^2 - 3(p + q)y + 2(p + q)^2$ |
| 2. $a^2 - 2a - 2ac + 4c$ | 13. $z^3 - z^2 - z + 1$ |
| 3. $3x^2 + 3x + 3xz + 3z$ | 14. $4h^2 - 4hk + k^2 - 9m^2$ |
| 4. $2hm + 6km - 4hk - 12k^2$ | 15. $2x^2 - 8y^2 - 2z^2 - 8yz$ |
| 5. $pq - 2q^2 + pr - 2qr$ | 16. $x^4 - (x - 2)^2$ |
| 6. $a^2 + 2ab + b^2 - c^2$ | 17. $3p(2 - p) - 2(p - 2)$ |
| 7. $1 + 4c + 4c^2 - 4d^2$ | 18. $x^2 - y^2 + 4y - 4$ |
| 8. $1 + 4a + 4a^2 + 16a^3$ | 19. $z^2 - 9t^2 - 2z + 6t$ |
| 9. $x^2 - y^2 - z^2 - 2yz$ | 20. $z^2 - 25x^2 - z + 5x$ |
| 10. $(a + b)^2 - (c - d)^2$ | 21. $(a^2 - 4)^2 - (a - 2)^2$ |
| 11. $x^2 + 2(a + b)x + (a + b)^2$ | 22. $4 - 24pq - 8q + 12p$ |

Factoring

- | | |
|---|---|
| 23. $20p^4 + 24p^2q^2 - 9q^4$ | 29. $p^4 - p^2q^2 + q^2 - 1$ |
| 24. $x(x + 1)(x + 2) + x + 1$ | 30. $(p + 3q)^2 - (p^2 - 9q^2)^2$ |
| 25. $(p + q)^2(p - q) - (p - q)^2(p + q)$ | 31. $45x^2 + 113xy + 12y^2$ |
| 26. $(a + b)^2 - a - b$ | 32. $45x^2 - 177xy - 12y^2$ |
| 27. $x^3 - ax^2 - a^2x + a^3$ | 33. $(a^2 - 9)^2 - (3 - a)$ |
| 28. $x^4 - x^2y^2 + y^2 - x^2$ | 34. $(x - 1)^3 + (1 - x)^2 - (x^2 - 1)^2$ |

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1. $(3y + 1)(y + 4)$
2. $2(p - 2q)(p + q)$
3. $(2 - x)(1 + 2x)$
4. $(p + 4q)(p - 4q)$
5. $3(5 + 2y)(5 - 2y)$
6. $(5a^2 + 1)(5a^2 - 1)$
7. $16(3z^2 + 1)(3z^2 - 1)$
8. $(7 - 2a)(1 - 3a)$
9. $2(x - 2y)^2$
10. $(2x + 7y)(2x - 7y)$
11. $(3 + 2q)(3 - 2q)$
12. $(16 + y^2)(4 + y)(4 - y)$
13. $(14 + 3x)(3 - x)$
14. $(5 + y)(5 - y)(1 + y)(1 - y)$
15. $(3k + 4)(8k + 5)$
16. $2(3b - 5)(3b - 4)$
17. $(3a + 10)(a + 20)$
18. $(x + 2)^2(x - 2)^2$
19. $3(5x + y)(3x - 4y)$
20. $3(5x + 4y)(3x - y)$
21. $(2 + a)(x - m)$
22. $(r + 4)(a + 2)$

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1. $(a + c)(a + b)$
2. $(a - 2c)(a - 2)$
3. $3(x + z)(x + 1)$
4. $2(m - 2k)(h + 3k)$
5. $(q + r)(p - 2q)$
6. $(a + b + c)(a + b - c)$
7. $(1 + 2c + 2d)(1 + 2c - 2d)$
8. $(1 + 4a^2)(1 + 4a)$
9. $(x + y + z)(x - y - z)$
10. $(a + b + c - d)(a + b - c + d)$
11. $(x + a + b)^2$
12. $(y - p - q)(y - 2p - 2q)$
13. $(z + 1)(z - 1)(z - 1)$
14. $(2h - k + 3m)(2h - k - 3m)$
15. $2(x + 2y + z)(x - 2y - z)$
16. $(x + 2)(x - 1)(x^2 - x + 2)$
17. $(3p + 2)(2 - p)$
18. $(x + y - 2)(x - y + 2)$

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19. $(z + 3t - 2)(z - 3t)$
20. $(z + 5x - 1)(z - 5x)$
21. $(a + 3)(a - 2)(a - 2)(a + 1)$
22. $4(1 + 3p)(1 - 2q)$
23. $(10p^2 - 3q^2)(2p^2 + 3q^2)$
24. $(x + 1)^3$
25. $(p + q)(p - q)(2q)$
26. $(a + b - 1)(a + b)$
27. $(x + a)(x - a)(x - a)$
28. $(x + 1)(x - 1)(x + y)(x - y)$
29. $(p^2 - q^2 + 1)(p + 1)(p - 1)$
30. $(p + 3q)^2(1 + p - 3q)(1 - p + 3q)$
31. $(9x + y)(5x + 12y)$
32. $(15x + y)(3x - 12y)$
33. $(a^3 + 3a^2 - 9a - 26)(a - 3)$
34. $(x - 1)^2(-x^2 - x - 1)$