Name:

Exam Style Questions

Factorising Quadratics

Corbettmaths

Equipment needed: Calculator, pen

Guidance

1. Read each question carefully before you begin answering it.
2. Check your answers seem right.
3. Always show your workings

Video Tutorial

www.corbettmaths.com/contents

Videos 118, 119, 120

Answers and Video Solutions

1. Factorise $x^2 + x - 6$

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

(2)

2. Factorise $x^2 + 5x + 6$

$(x+2)(x+3)$

(2)

3. Factorise $x^2 + 9x + 20$

$(x+4)(x+5)$

(2)

4. Factorise $x^2 + 10x + 9$

$(x+9)(x+1)$

(2)

5. Factorise $x^2 - 7x + 12$

$(x-3)(x-4)$

(2)

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6. Factorise $x^2 - 2x - 24$

$(x-6)(x+4)$

(2)

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7. Factorise $x^2 - 6x - 27$

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

(2)

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8. Factorise $x^2 - 36$

$(x+6)(x-6)$

(2)

9. Factorise $x^2 + 5x - 24$

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

(2)

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10. Factorise $x^2 + 8x + 16$

$(x+4)(x+4)$

(2)

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11. Factorise $x^2 - 121$

$(x-11)(x+11)$

(2)

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12. Factorise $x^2 + 7x - 78$

$(x+13)(x-6)$

(2)

13. Factorise $x^2 + 4x - 12$

$(x+6)(x-2)$

(2)

14. Factorise $x^2 - 25$

$(x-5)(x+5)$

(2)

15. Factorise $y^2 - 9y + 14$

$(y-7)(y-2)$

(2)

16. Factorise $49 - y^2$

$(7-y)(7+y)$

(2)

17. Factorise $y^2 - 9w^2$

$(y - 3w)(y + 3w)$

(2)

18. Factorise $x^2 - 38x + 72$

$(x - 36)(x - 2)$

(2)

19. Factorise $x^2 + 14x - 51$

$(x + 17)(x - 3)$

(2)

20. Factorise $y^2 + 32y + 240$

$(y + 12)(y + 20)$

(2)

21. Factorise $y^2 - 12y - 64$

$(y-16)(y+4)$

(2)

22. Freddy has been asked to factorise $x^2 - 11x + 30$

His answer is $(x + 5)(x + 6)$

Explain his mistake.

Freddy should use subtract signs in the brackets.
$(x-5)(x-6)$

(2)

23. A quadratic expression, $x^2 + ax + 24$, can be factorised.

a is a positive integer.

How many possible values are there for a?

$(x+1)(x+24)$ $a=25$

$(x+2)(x+12)$ $a=14$

$(x+3)(x+8)$ $a=11$

$(x+4)(x+6)$ $a=10$

factors of 24
1 & 24
2 & 12
3 & 8
4 & 6

4

(3)

24. Factorise $2y^2 + 7y - 15$

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

(2)

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25. Factorise fully $2y^2 - 50$

$2(y^2-25)$

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

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

(2)

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26. Factorise $y^2 - 13y + 36$

$(y-9)(y-4)$

(2)

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27. Factorise $2w^2 - 9w + 4$

$(2w-1)(w-4)$

(2)

28. Factorise $2x^2 + 5x + 2$

$(2x+1)(x+2)$

(2)

29. Factorise $2y^2 + 7y - 15$

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

(2)

30. Factorise $3y^2 + 10y - 8$

$(3y-2)(y+4)$

(2)

31. Factorise $5x^2 - 13x - 6$

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

(2)

32. Factorise $7x^2 - 19x + 12$

$(7x - 12)(x - 1)$

(2)

33. Factorise $6w^2 - 11w - 10$

$(3w + 2)(2w - 5)$

(3)

34. Factorise $7x^2 + 8x + 1$

$(7x + 1)(x + 1)$

(2)

35. Factorise $8y^2 + 10y - 3$

$(4y - 1)(2y + 3)$

(3)

36. Factorise $24y^2 + 19y + 2$

$(8y+1)(3y+2)$

(3)

37. Factorise $6w^2 - 7w - 10$

$(w-2)(6w+5)$

(3)

38. A quadratic expression, $5x^2 + ax + 9$, can be factorised.

a is an integer.

$5x \quad ex$

$9 \quad e \; 1 \qquad -3 \quad e \; -3$

$3 \quad e \; 3 \qquad -9 \quad e \; -1$

How many possible values are there for a?

$(5x+9)(x+1) \quad a = 14$

$(5x+1)(x+9) \quad a = 46$

$(5x+3)(x+3) \quad a = 18$

$(5x-3)(x-3) \quad a = -14$

$(5x-1)(x-9) \quad a = -46$

$(5x-9)(x-1) \quad a = 14$

6

(4)

39. Factorise $10x^2 + 119x - 75$

$(5x - 3)(2x + 25)$

(3)

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40. Factorise $3x^2 + 4xy + y^2$

$(3x + y)(x + y)$

(3)

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41. Factorise $7x^2 + 20xy - 3y^2$

$(7x - y)(x + 3y)$

(3)

42. Factorise fully $(x+4)^2+3(x+4)$

$(x+4)[(x+4)+3)$

$(x+4)(x+7$

$(x+4)(x+7)$

(2)

43. (a) Factorise $10x^2+9x+2$

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

(2)

(b) Hence factorise $10(y-3)^2+9(y-3)+2$

$(5(y-3)+2)(2(y-3)+1)$

$(5y-13)(2y-5)$

$(5y-13)(2y-5)$

(3)