Name:

Level 2 Further Maths

Expanding Brackets

Corbettmaths

Ensure you have: Pencil or pen

Answers

Guidance

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

Revision for this topic

www.corbettmaths.com/more/further-maths/

1. (a) Expand and simplify $2(3x + 1) + 4(9 - x)$

$6x + 2 + 36 - 4x$

$2x + 38$

$2x + 38$

(2)

(b) Expand $w^4(w^2 + 3)$

$w^6 + 3w^4$

(2)

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2. Expand and simplify $5(x - 2) - 2(4x - 3)$

$5x - 10 - 8x + 6$

$= -3x - 4$

$-3x - 4$

(2)

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3. Expand and simplify $(m - 3)(2m + 3)$

$2m^2 + 3m - 6m - 9$

$2m^2 - 3m - 9$

$2m^2 - 3m - 9$

(3)

4. Expand and simplify $(3x + 5y)(7x - 2y)$

$21x^2 - 6xy + 35xy - 10y^2$

$21x^2 + 29xy - 10y^2$

.....

(3)

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5. Expand and simplify $(4x + 1)^2 - (4x - 1)$

$(4x+1)(4x+1) - (4x-1)$

$= 16x^2 + 8x + 1 - 4x + 1$

$= 16x^2 + 4x + 2$

.....

(3)

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6. Expand and simplify $(6y - 5)(3y + 2) + (1 - y)(2 - y)$

$= 18y^2 + 12y - 15y - 10 + 2 - y - 2y + y^2$

$= 18y^2 - 3y - 10 + 2 - 3y + y^2$

$= 19y^2 - 6y - 8$

.....

(3)

7. Expand and simplify $(2x + y)^2 - (2x - y)^2$

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

$= 4x^2 + 4xy + y^2 - (4x^2 - 4xy + y^2)$

$= 8xy$

8xy

.....

(3)

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8. Expand and simplify $(x^2 + 3x - 4)(3x - 4)$

$= 3x^3 - 4x^2 + 9x^2 - 12x - 12x + 16$

$= 3x^3 + 5x^2 - 24x + 16$

.....

(3)

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9. Expand and simplify $2xy(x + 2y)(3x - y)$

$(2x^2y + 4xy^2)(3x - y)$

$= 6x^3y + 12x^2y^2 - 2x^2y^2 - 4xy^3$

$= 6x^3y + 10x^2y^2 - 4xy^3$

.....

(3)

10. $ax - 2(x + b) + 8 = 10(x + 2)$

$ax - 2(x + b) + 8 = 10x + 20$

$ax - 2x - 2b + 8 = 10x + 20$

$-2b + 8 = 20$

$-2b = 12$

$b = -6$

$a - 2 = 10$

$a = 12$

a = 12 b = -6

(4)

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11. $2a(3x - 1) + 3(ax + 7) \equiv 36x + b$

Find the values of *a* and *b*

$6ax - 2a + 3ax + 21 \equiv 36x + b$

$6a + 3a = 36$

$9a = 36$

$a = 4$

$-8 + 21 = b$

$b = 13$

a = 4 b = 13

(4)

12. (a) Expand $(y+p)(y-q)$

$y^2 - qy + py - pq$

.....

(1)

(b) $y^2 + ay + b \equiv (y+p)(y-q)$

Write *a* and *b* in terms of *p* and *q*

$y^2 + ay + b \equiv y^2 - qy + py - pq$

a = ... $p - q$ .....

b = ... $-pq$ .....

(2)

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13. Expand and simplify $(x+4)(4x-3) - 2(x-5)^2$

$4x^2 - 3x + 16x - 12 - 2(x^2 - 10x + 25)$

$= 4x^2 + 13x - 12 - 2x^2 + 20x - 50$

$= 2x^2 + 33x - 62$

.....

(3)

14. Simplify $(6x + 15)^2 - (5x - 10)^2 + 20x - 1$

$36x^2 + 180x + 225 - (25x^2 - 100x + 100) + 20x - 1$

$11x^2 + 300x + 124$

.....

(4)

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15. Expand and simplify $(4xy + 3xy^2 - 2y)(7x + x^2)$

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

$26x^2y + 4x^3y + 21x^2y^2 + 3x^3y^2 - 14xy$

.....

(4)

16. Expand and simplify $\frac{2}{x}(2x^3 + \frac{x^2}{2} + 3x)$

$4x^2 + x + 6$

.....

(3)