Aberdare Community School

Mathematics Department

WJEC GCSE

Higher – Non Calculator

Algebra

Factorise

Name: .....

Set: .....

Date: .....

Teacher: .....

20. Factorise the expression $6x^2 + 11x + 3$ and hence solve the equation $6x^2 + 11x + 3 = 0$.

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[3]

18.

(b) Factorise $3x^2 + 10x - 8$ and hence solve the equation $3x^2 + 10x - 8 = 0$.

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[3]

23. *(a)* Factorise the expression $10t^2 + 11t + 3$ and hence solve the equation $10t^2 + 11t + 3 = 0$.

[3]

(b) Factorise the expression $36d^2 - 100$.

[2]

18. *(a)* Factorise $16p^2 - 25$.

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[2]

(b) Factorise $4q^2 + 3q - 10$.

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Examiner only

18. *(a)* Factorise $21x^2 + 4x - 1$. Hence solve $21x^2 + 4x - 1 = 0$.

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(b) (i) Factorise $49x^2 - 64$.

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(ii) Hence simplify $\frac{49x^2 - 64}{7x - 8}$.

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[1]

14. *(a)* Factorise the expression $x^2 - 5x + 6$ and hence solve the equation $x^2 - 5x + 6 = 0$.

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(b) Factorise $(x + 3)^2 - 4(x + 3)$.

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(c) Expand and simplify $(x + 6)(x - 3)$.

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19.

(b) Simplify $\frac{x^2 - 9}{2x - 6}$.

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[3]

12. *(a)* (i) Factorise $25x^2 - 49y^2$.

(ii) **Hence** simplify $\dfrac{25x^2 - 49y^2}{10x^2 - 14xy}$.

[4]

(b) Factorise the expression $15x^2 + 19x + 6$, and **hence** solve the equation $15x^2 + 19x + 6 = 0$.

[3]

15. *(a)* Factorise $14x^2 + 3x - 2$ and hence solve the equation $14x^2 + 3x - 2 = 0$.

[3]

(b) Factorise $q^2 - 49$.

[1]

(c) Simplify $\frac{x^2 + 5x + 6}{3x + 6}$.

[3]

Examiner only

15. *(a)* Simplify $\dfrac{(y+5)^6}{(y+5)^2}$.

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[1]

(b) Factorise $4a^2 - 81$.

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[2]

(c) Factorise the expression $10x^2 + 23x - 5$ and hence solve the equation $10x^2 + 23x - 5 = 0$.

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19. Completely factorise the expression $3xy + 6x^2 - py - 2px$.

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Examiner only

12.

(b) Factorise $12y^2 - 18xy$.

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[2]

Examiner only

17. *(a)* Factorise the expression $14w^2 + 23w + 3$ and hence solve the equation $14w^2 + 23w + 3 = 0$.

[3]

(b) Factorise the expression $9e^2 - 49$.

[2]

Examiner only

8.

(d) Factorise $x^2 + x - 12$ and hence solve the equation $x^2 + x - 12 = 0$.

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[3]

Examiner only

12.

(b) Factorise the expression $121d^2 - 25$.

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(c) Factorise the expression $20y^2 + 7y - 6$ and hence solve the equation $20y^2 + 7y - 6 = 0$.

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Examiner only

15. *(a)* Factorise the expression $12x^2 + 11x - 15$ and hence solve the equation $12x^2 + 11x - 15 = 0$.

[3]

(b) Factorise the expression $49y^2 - 100$.

[2]

Examiner only

13. *(a)* (i) Factorise $x^2 - 64$.

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(ii) Simplify $\frac{x^2-64}{2x^2-15x-8}$.

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[4]

Examiner only

(b) Factorise $x^2 + 4x$.

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[1]

Examiner only

15.

(b) Factorise the expression $4x^2 - 81$ and hence solve the equation $4x^2 - 81 = 0$.

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Examiner only

9. *(a)* Factorise $x^2 - 2x - 8$.

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Examiner only

11. *(a)* Factorise the expression $6x^2 - 11x - 10$ and hence solve the equation $6x^2 - 11x - 10 = 0$.

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[3]

(b) Factorise $4y^2 - 81$.

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[2]

Examiner only

9.

(b) Factorise $x^2 - 16$.

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[1]

(c) Factorise $x^2 - 8x + 15$.

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[2]

Examiner only

(e) Given that the product of $(x + 4)$ and $(2x + 3)$ is -3 find all the possible values of x.

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[5]

Turn over.

Examiner only

10. A cuboid with a volume of $912\,\text{cm}^3$ has dimensions 4 cm, $(x + 2)$ cm and $(x + 9)$ cm.
Write down an equation in terms of x.
Hence, solve the equation to find the dimensions of the cuboid.

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[7]

Examiner only

13.

(b) Factorise $4x^2 - 1600$.

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[3]

Examiner only

9.

(b) Factorise $2x^2 + x - 3$ and hence solve $2x^2 + x - 3 = 0$.

[3]

Examiner only

13. *(a)* Factorise the expression $x^2 + 14x - 15$ and hence solve the equation $x^2 + 14x - 15 = 0$.

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[3]

Examiner only

18. *(a)* Simplify $\dfrac{x^2 - 81}{2x^2 + 13x - 45}$.

[4]

Examiner only

12. *(a)* Factorise $x^2 - 4x - 21$ and hence solve $x^2 - 4x - 21 = 0$. [3]

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Examiner only

12. *(a)* Factorise $6x^2 + 13x - 5$. [2]

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Examiner only

12. *(a)* Factorise the following expressions.

(i) $12x^2 + 18xy$ [2]

(ii) $x^2 - 100$ [1]

(b) Factorise $x^2 - 5x - 14$ and hence solve $x^2 - 5x - 14 = 0$. [3]

Turn over.

Examiner only

7.

(b) Factorise $x^2 - 10x + 16$ and hence solve the equation $x^2 - 10x + 16 = 0$. [3]

Turn over.