



Aberdare Community School  
Mathematics Department

WJEC GCSE  
**Higher – Non Calculator**  
Algebra

## **Algebra skills - middle of paper**

Name: .....

Set: .....

Date: .....

Teacher: .....

13. Solve the equation  $5(x + 4) - 3(x - 2) = 0$ .

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[4]

13. (a) Simplify  $4(2a + 3) + 2(3a - 1)$ .

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[2]

(b) Expand  $b(b^3 + 5)$ .

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[2]

(c) Solve  $\frac{c}{10} + 3 = 9$  .

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[2]

13. (a) Simplify  $4p^3r^6 \times 3pr^2$ .

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[2]

(b) Factorise  $6a^2b + 9a$ .

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[2]

15. (a) Solve the inequality

$$13 - 3x \geq 22 - 7x.$$

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[2]

(b) Write down the smallest whole number that satisfies this inequality.

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[1]

4. (a) Solve  $10x = 30 + 5x$ .

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(b) Solve  $6(x - 3) = 42$ .

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[3]

(c) Simplify  $5(a + 3b) + 3a - 20b$ .

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14. (a) Simplify  $5c^6d^4 \times 4c^3d$ .

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[2]

(b) Factorise  $6ab - 2a^2$ .

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15. Solve the following equation.

$$\frac{4x-1}{3} - \frac{2x+7}{6} = \frac{5}{2}$$

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10. Solve  $\frac{2x+1}{3} + 3x = 2$ .

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7. (a) Expand  $c(c^3 - 5)$ .

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- (b) Simplify  $4(2d - 3) + 3(5 - 7d)$ .

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- (c) Solve **each** of the following equations.

(i)  $7e + 12 = 3(e + 6)$

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(ii)  $\frac{f}{5} + 7 = 17$

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[2]

9. (a) Expand  $y(4y^3 + 1)$ .

..... [2]

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

..... [1]

- (c) Simplify  $3x^6y^4 \times 2x^3y$ .

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8. (a) Solve  $\frac{20+x}{3} = 7$ .

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[3]

(b) Solve  $6x < 2x + 24$ .

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[2]

8. (a) Simplify  $\frac{y^8}{y^2}$ .

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(b) Expand  $x(x^3 + 5)$ .

[2]

(c) Solve  $8x + 17 = 3(x + 9)$ .

[3]



8. (a) Simplify  $\frac{a^6 \times a^8}{a^7}$ .

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[1]

(b) Expand  $x(x + 2)$ .

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[1]

(c) Solve  $3n + 5 > 9 + n$ .

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[2]

7. (a) Simplify  $4(2x + 3) + 3(3x - 8)$ .

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[2]

(b) Expand  $y(y^3 + 7)$ .

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[2]

(c) Solve  $\frac{x}{3} + 7 = 12$ .

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(d) Solve  $3(2y + 5) = 45$ .

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10.

(b) Simplify each of the following.

(i)  $5x^4y^6 \times 4x^5y$

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(ii)  $\frac{50a^6b}{10a^3b^3}$

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(d) Simplify  $6(4y + 3) + 5(3y - 8)$ .

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(e) Expand  $w(3w^3 - 5)$ .

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(f) Find the value of  $5g^2 - 6h$  when  $g = -2$  and  $h = -\frac{1}{2}$ .

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(g) Solve  $x^2 - 3x - 10 = 0$ .

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6.

(b) Solve  $3x + 4 = 8 - 7x$ .

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9.

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

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(c) Solve  $\frac{21-2x}{5} = 4 - x$ .

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(d) Simplify  $6x^7y^2 \times 4x^3y^5$ .

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[2]

(e) Simplify  $a^5 \times a^{-2}$ .

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[1]

9. (a) Expand and simplify  $(2x + 3)(3x - 5)$ .

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[3]



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

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[3]

- (c) Simplify  $\frac{(x + 5)^8}{(x + 5)^2}$ .

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[1]



14.

(b) Simplify  $\frac{49x^2 - 100}{14x + 20}$ .

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[4]

(c) Simplify  $\frac{(2x - 5)^8}{(2x - 5)^6}$ .

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[1]



7.

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

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5. (a) Expand  $y(y^5 + 3)$ .

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

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(b) Solve  $\frac{2x+3}{3} + \frac{4x+1}{2} = \frac{43}{2}$  .

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9. Solve the following equation.

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$$\frac{5x-1}{2} - x = \frac{1}{2}$$

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12. (a) Expand and simplify  $(c + 3)(2c - 5)$ .

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7. (a) Solve the following equation.

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$$\frac{20 + 3x}{4} + \frac{5 - x}{5} = \frac{13}{4}$$

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