

Oxford Revise | AQA GCSE Maths Higher | Answers

Chapter 5 Algebra basics

Question	Answer	Extra information	Marks
5.1 (a)	$(2a)^3 = 8a^3$	8 a^3	1 1
5.1 (b)	$\frac{6x^2y^{-3}}{18yx^{-1}} = \frac{6x^3}{18y^4} = \frac{x^3}{3y^4}$ Alternative acceptable final answers $\frac{1}{3}x^3y^{-4}$ or $\frac{1}{3}\frac{x^3}{y^4}$	Correct collecting of x and y terms Correct final answer	1 1
5.1 (c)	$\sqrt{x^4y^6} = \sqrt{x^4} \times \sqrt{y^6} = x^2y^3$	x^2 y^3	1 1
5.2	$5(3-x) - 4(6-3x) = 15 - 5x - 24 + 12x$ $= -9 + 7x$	$7x - 9$	1 1
5.3 (a)	$\frac{5-x}{2} = 12$ $5-x = 24$ $5-24 = x$ $x = -19$	$5-x = 24$ Correct answer	1 1

Question	Answer	Extra information	Marks
5.3 (b)	$\frac{2}{y} = 5$ $2 = 5y$ $y = \frac{2}{5}$	$2 = 5y$ Correct answer	1 1
5.3 (c)	$3 + p = 4p - 6$ $3 + 6 = 4p - p$ $9 = 3p$ $p = 3$	$9 = 3p$ Correct answer	1 1
5.3 (d)	$3(3 - 2p) = 4 - 11p$ $9 - 6p = 4 - 11p$ $9 - 4 = 6p - 11p$ $5 = -5p$ $p = -1$	$5 = -5p$ Correct answer	1 1
5.4	$5y - 2 = \frac{y - 13}{2}$ $10y - 4 = y - 13$ $9y = -9$ $y = -1$	Multiply each side by 2 $9y$ or -9 correct Correct answer	1 1 1
5.5 (a)	$\frac{3^6}{3^7} = 3x$ $3^{-1} = 3x$ $\frac{1}{3} = 3x$ $\frac{1}{9} = x$	3^6 3^{-1} Correct answer	1 1 1

Question	Answer	Extra information	Marks
5.5 (b)	$2^5 \times 4^2 = 8x$ $2^5 \times (2^2)^2 = 8x$ $2^5 \times 2^4 = 8x$ $2^9 = 8x$ $512 = 8x$ $64 = x$	Writing 4 as 2^2 or 8 as 2^3 2^9 on the LHS Correct answer	1 1 1
5.6	$\frac{c^t \times c^{2t}}{c} = c^2$ $\frac{c^{3t}}{c} = c^2$ $c^{3t} = c^3$ $3t = 3$ $t = 1$	c^{3t} Multiply both sides by c Equate the indices Correct answer	1 1 1 1
5.7	$2x + 3 = 3x - 4$ $-x = -7$ $x = 7$	Correct equation Correct rearrangement Correct answer	1 1 1
5.8	$(4x - 1)(2x + 5)(3x - 2)$ $= (8x^2 + 18x - 5)(3x - 2)$ $= 24x^3 - 16x^2 + 54x^2 - 36x - 15x + 10$ $= 24x^3 + 38x^2 - 51x + 10$ (Brackets can be multiplied in two other orders)	All three pairs of brackets expanded, with at least half of all terms correct Correct answer	1 1
5.9 (a)	$4x(4 + 3y)$	Removing any one common factor Fully factorised	1 1

Question	Answer	Extra information	Marks
5.9 (b)	$xy(x + y)$	Removing any one common factor Fully factorised	1 1
5.9 (c)	$2p(4 - 2pq + 3q)$	Removing any one common factor Fully factorised	1 1
5.10 (a)	$2x^2 - 3 = y$ $2x^2 = y - 3$ $x^2 = \frac{y - 3}{2}$ $x = \sqrt{\frac{y - 3}{2}}$	Making x^2 the subject Correct answer	1 1
5.10 (b)	$a\sqrt{x} + b = c$ $a\sqrt{x} = c - b$ $\sqrt{x} = \frac{c - b}{a}$ $x = \left(\frac{c - b}{a}\right)^2$	Making \sqrt{x} the subject Correct answer	1 1
5.11	$\frac{P}{R} = I^2$ $I = \sqrt{\frac{P}{R}}$	Making I^2 the subject Correct answer	1 1

Question	Answer	Extra information	Marks
5.12	<p>Mion-Jun has made a mistake on line 3. The correct working is as follows.</p> $y = a^2x - b$ $y + b = a^2x$ $x = \frac{y + b}{a^2}$	<p>Identifying the mistake in line 3 Correct explanation Correct answer</p>	<p>1 1 1</p>
5.13	$6d = \frac{n-7}{3r+1}$ $3r+1 = \frac{n-7}{6d}$ $3r = \frac{n-7}{6d} - 1$ $r = \frac{n-7}{18d} - \frac{1}{3}$	<p>One correct algebraic step Two correct algebraic steps Correct final answer or in equivalent form</p>	<p>1 1 1</p>
5.14 (a)	$mp - ap = q$ $p(m - a) = q$ $p = \frac{q}{m - a}$	<p>Bringing both terms with p to the same side Factorising Correct answer</p>	<p>1 1 1</p>

Question	Answer	Extra information	Marks
5.14 (b)	$\frac{1}{p} = \frac{1}{t} - \frac{1}{r}$ $\frac{1}{p} = \frac{r-t}{rt}$ $p = \frac{rt}{r-t}$	Making $\frac{1}{p}$ the subject Combining two fractions Correct answer	1 1 1
5.15 (a)	$26 \times 10^5 = 2\,600\,000$ codes	Correct product Correct final answer	1 1
5.15 (b)	$26 \times 10 \times 9 \times 8 \times 7 \times 25 = 3\,276\,000$	Correct product Correct final answer	1 1
5.16	$0.78\dot{3}$ Let $x = 0.783333\dots$ $100x = 78.3333\dots$ $1000x = 783.3333\dots$ $1000x - 100x = 783.3333\dots - 78.3333\dots$ $900x = 705$ $x = \frac{705}{900}$ $x = \frac{47}{60}$	$100x = 78.3333\dots$ $1000x = 783.3333\dots$ Subtract $100x$ from $1000x$ Divide and simplify	1 1 1