

Mark schemes

Q1.

$$2 \times y \times y$$

B1

[1]

Q2.

(a) $4a$

B1

(b) $6b^2$

B1

(c) $6c - 3$

Mark final answer

B1

[3]

Q3.

(a) $4x$

B1

(b) y^3

B1

(c) $b + a$

B1

[3]

Q4.

(a) $6a$

Accept $6 \times a$ or $a \times 6$ but not $a6$

B1

(b) $6mp$

*Strand (i)
Accept $6pm$ but not with \times signs
 $pm6$ or $mp6$ or $6(mp)$ Q0*

Q1

[2]

Q5.

(a) Expression

B1

(b) Equation and/or Formula

B1

[2]

Q6.

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

$$3) \text{ or } 4x + 6 - 12x$$

$$+ 12$$

*This mark is for the numerator of the LHS.
Ignore any denominators.*

Three terms correct if expanded without brackets seen.

M1

$$-8x + 18$$

A1

$$\text{Their } -8x + 18 = 16$$

*This mark is for dealing with the denominators of the LHS
and the value on the RHS*

NB $2(2x + 3) - 4(3x - 3) = 16$ is M2

M1

$$0.25, \frac{1}{4}, \frac{2}{8} \text{ oe}$$

ft on one error only.

Do not accept $-1/-4$

A1ft

Alternative Method 1

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

$$\text{or } 2x + 3 - 6x + 6$$

*This mark is for the numerator of the LHS.
Ignore any denominators.*

Three terms correct if expanded without brackets seen.

M1

$$-4x + 9$$

A1

$$\text{Their } -4x + 9 = 8$$

*This mark is for dealing with the denominators of the LHS
and the value on the RHS*

NB $(2x + 3) - 2(3x - 3) = 8$ is M2

M1

$$0.25, \frac{1}{4}, \frac{2}{8} \text{ oe}$$

ft on one error only. Do not accept $-1/-4$

A1ft

Alternative Method 2

$$\frac{x}{2} + \frac{3}{4} - \frac{3x}{2} + \frac{3}{2}$$

Three correct terms for M1

M1

$$-x \text{ or } 2\frac{1}{4}$$

A1

$$-x + 2\frac{1}{4} = 2 \text{ or } -x + \frac{3}{4} = 2$$

M1

0.25, $\frac{1}{4}$, $\frac{2}{8}$ oe

ft on one error only. Do not accept -1/-4

A1ft

[4]

Q7.

$$5(3x + 7y - 8z)$$

B1

[1]

Q8.

$$6x - 4$$

B1

$$\text{LHS} = xy + 6x - xy - 4$$

Both brackets must be removed.

Must see xy and $-xy$

Allow +4 for B1

B1

Expanding LHS and simplifying and stating

Strand (ii). For the Q mark this must be clearly shown and not 'assumed'.

$$6x - 4 = 2(3x - 2)$$

$$\text{or } 2(3x - 2) = 6x - 4$$

or showing clearly that all terms cancel.

If + 4 seen in expansion and this is subsequently changed to -4 do not allow the Q mark unless the error is recognised and 'recovered'.

Q1

[3]

Q9.

$$x^2 + 3x$$

B1

[1]

Q10.

(a) $15x + 35$ or $35 + 15x$

B1

Additional Guidance

Answer line takes precedence. Mark answer line even if correct answer seen in script.

Do not award if incorrect further work. For example $15x + 35 = 50x$ but allow $15x + 35 = 5(3x + 7)$ as this is just checking answer is correct.

(b) $w = z - 3$ or $w = -3 + z$
or $z - 3 = w$ or $-3 + w$

Must have $w =$ or w

B1

Additional Guidance

Many students write the number 2. Allow for this

(c) $2y(2y + 3)$

B1 for $2(2y^2 + 3y)$ or $y(4y + 6)$

B2

Additional Guidance

Allow \times signs between numbers, brackets and letters, eg $2y \times (2y + 3)$ or $3 \times y$

Factorising may be done in two 'steps', ie $y(4y + 6)$ followed by $2y(2y + 3)$.
second attempt is done wrongly, B1 can still be awarded.

$y(4y + 6)$

$2y(2y + 6)$

B1
B0

$2(2y^2 + 3y)$

$2y(y + 3)$

B1
B0

[4]

Q11.

$4x - 3$

B1

[1]

Q12.

$14x + 8 - 4x - 24 + 1$

Allow one error

M1

$10x - 15$

A1

$5(2x - 3)$

A1

[3]

Q13.

(a) $(x - y)(x + y)$

B1

(b) $\frac{2x}{5} = 13 - 1$ or $\frac{2x}{5} = 12$
(13 - 1) × 5 scores M1

M1

$2x = \text{their } 12 \times 5$

or

$2x = \text{their } 65 - \text{their } 5$ or $2x = 60$

oe

(13 - 1) × 5 ÷ 2 scores M1M1

M1

30

A1

Additional Guidance

Embedded answer

eg $\frac{2 \times 30}{5} + 1 = 13$

M1M1A0

eg $\frac{60}{5} + 1 = 13$

M1M0A0

[4]

Q14.

(a) $9x + 6$

*B1 for each term
Do not ignore fw*

B2

(b) $4x + 12$

Do not ignore fw

B1

(c) $x(x - 5)$

Do not ignore fw

B1

[4]

Q15.

(a) $a^3 + 2b$

B1 for $a^3 (+)$ or $(+) 2 b$

B2

Additional Guidance

Do not accept $2 \times b$ or b^2 for $2b$

Do not accept $3a$ for a^3

Do not accept further working for B2

eg $a^3 + 2b = a^3 2b$

B1

Do not accept further working for B1

eg $3a + 2b = 5ab$ or $a^3 b^2 = a^3 b^2$

B0

$a^3 + b^2$

B1

$3a + b$

B1

$a^3 2b$

B1

$a^3 2b = a^3 2b$

B1

$a^3 \times 2b$ or $a^3 2b$ without working for B1

B0

$a^3 \times b^2$ or $a^3 b^2$

B0

$3a \times b$

B0

$3a - b$

B0

(b) $5x (+) 15$

Implied by correct answer

B1

$4x + 17$

B2ft their $5x + 15$ in the form $5x + ax + 15$, both their terms with correct ft in final answer

B1ft $4x$ or $(+)17$

B1ft their $5x + 15$ in the form $5x + ax + 15$, one of their terms with correct ft in final answer

B2ft

Additional Guidance

ft $4x$ or $(+)$ 17 or must use $5x + 2$ or $4x + 15 - x + 2$

$4x + 17$ with no expansion seen

B1B2

Ignore further working with an attempt to solve after their $4x + 17$
eg. $4x + 17 = 0$ followed by $x = -4.25$

B1B2

Do not ignore further working with an attempt to simplify after their $4x$
eg $4x + 17$ followed by $21x$

B1B1

$5x + 15 - x + 2$ followed by $4x + 15 = -2$

B1B1

$5x + 3$ followed by $4x + 5$ also $5x - 15$ followed by $4x - 13$

B0B2ft

Ignore further working after $5x + 15$ for first B1

eg $5x + 15$ followed by $20x$ and $20x - x + 2$ followed by $19x + 2$

B1B0

$5x - 15$

B1

$4x + k$, $k \neq 17$, with no expansion seen

B0B1ft

$kx + 17$, $k \neq 4$, with no expansion seen

B0B1ft

$5x + 15 - 5x + 10$ followed by 25

B1B0

$5x + 3$ followed by $4x + 1$

B0B1ft

$5x^2 + 15$ followed by $-5x + 2$ or 17

B0B1ft

$5x + 3$ followed by $4x + 1$ followed by 5

B0B0ft

$5x + 3$ followed by $6x + 1$

B0B0ft

$5x^2 + 3$ followed by $-5x + 25$

B0B0ft

[5]

Q16.

(a) y^2

B1

(b) $4a + 11$

B1 for each term

B2

Additional Guidance

$4a$ or 11 or $4a + 11$ seen and answer e.g. 15

B1

$4a + 11$ seen and then 'solves'

B1

11 and -11 seen (without $4a$ seen)

B0

[3]

Q17.

$4n$

B1

[1]

Q18.

$A = 2B$

B1

[1]

Q19.

(a) $5x - 45$

B1

(b) $x(x + 8)$

$(x + 0) (x + 8) (x + 8)x (x + 8) (x + 0) (x + 4)^2 - 16 x(8 + x) (8 + x)x x(x + 8)$ [allow missing last bracket]

B1

(c) $6 \times 9 \div 2$

oe 6×4.5 or 9×3 or any indication that RHS is multiplied by $\frac{9}{2}$
6 eg 54 seen or $\frac{9}{2} (\times 6)$

M1

27

A1

[4]

Q20.

- (a) $11a + 3b$ or $3b + 11a$
B1 for one term correct

B2

- (b) $6x + 18$

B1

[3]

Q21.

- (a) $2x(2x - 3y)$
B1 for correct partial factorisation
eg
 $2(2x^2 - 3yx)$
or $x(4x - 6y)$
Do not accept further work

B2

- (b) $2w - 1 = 8 - 4w$

or $\frac{2w}{4} - \frac{1}{4} = 2 - w$

Do not accept $8w = 8 - 4w$

B1

$2w + 4w = 8 + 1$

or $\frac{2w}{4} + w = 2 + \frac{1}{4}$

ft their 4 terms

M1

$(w =) 1.5$

oe

A1ft

[5]

Q22.

$a + 20a^2$

B1

[1]

Q23.

$a \div b$

B1

[1]

Q24.

(a) Equation

B1

(b) Formula

B1

(c) Expression

B1

(d) Expression

B1

[4]