

## 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.**

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

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**

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

*ft on one error only.*

*Do not accept  $-1/-4$*

**A1ft**

#### **Alternative Method 1**

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

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**

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,  $\frac{1}{4}$ ,  $\frac{2}{8}$  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  $-3 + z = w$

*Must have  $w =$  or  $= w$*

B1

**Additional Guidance**

Many students write  $z$  like 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  $2(2 \times y^2 + 3 \times y)$

Factorising may be done in two 'steps', ie  $y(4y + 6)$  followed by  $2y(2y + 3)$ . If the 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

$(13 - 1) \times 5 \div 2$  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)  $9x + 6y$

*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 (+)  $2b$* **B2****Additional Guidance**Do not accept  $2 \times b$  or  $b2$  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**

$3a + 2b$

**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**

$3a \times 2b$

**B0**

$3a - 2b$

**B0**

(b)  $5x (+) 15$

*Implied by correct answer***B1**

$4x + 17$

*B2ft their  $5x + 15$  in the form  $5x + b$  or  $ax + 15$ , both their terms with correct ft in final answer**B1ft  $4x$  or  $(+)17$* *B1ft their  $5x + 15$  in the form  $5x + b$  or  $ax + 15$ , one of their terms with correct ft in final answer***B2ft**

### Additional Guidance

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

$4x + 17$  with no expansion seen

**B1B2**

Ignore further working with an attempt to solve after their  $4x + 17$

e.g.  $4x + 17 = 0$  followed by  $x = -4.25$

**B1B2**

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

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**

$5x \quad 15$

**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  $5x^2 - x + 17$

**B0B1ft**

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

**B0B0ft**

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

**B0B0ft**

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

**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.  $15a$

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  $6 \times 4.5$  or  $9 \times 3$  or any indication that RHS is multiplied by

$6$  eg  $54$  seen or  $\frac{9}{2} (\times 6)$

M1

27

A1

[4]



**Q20.**

- (a)  $11a + 3b$  or  $3b + 11a$   
 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  $8w - 4 = 8 - 4w$*

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]**