Q1.

Alternative method 1

$yx = 3x + 5$

Cross multiplying

Allow $y \times x = 3 \times x + 5$

M1

$yx - 3x = 5$ or $3x - yx = -5$

oe

M1dep

$x = \frac{5}{y-3}$ or $x = \frac{-5}{3-y}$

Must have $x =$ *as part of answer*

ft on one rearrangement error

A1ft

Alternative method 2

$y = 3 + \frac{5}{x}$

M1

$y - 3 = \frac{5}{x}$

oe

M1dep

$x = \frac{5}{y-3}$ or $x = \frac{-5}{3-y}$

Must have $x =$ *as part of answer*

ft on one rearrangement error

A1ft

Additional Guidance

$yx = 3x + 5$

M1

$yx + 3x = 5$

M0dep

$x = \frac{5}{y+3}$

A1ft

$yx = 3x + 5$

M1

$3x - yx = 5$

M0dep

$x = \frac{5}{3-y}$

A1ft

$y = 3 + \frac{5}{x}$

M1

$y + 3 = \frac{5}{x}$

M0dep

$x = \frac{5}{y+3}$

A1ft

[3]

Q2.

$3y - p = 2h + hy$

M1

$3y - hy = 2h + p$

$-2h - p = hy - 3y$

This mark is for correct rearranging from an incorrect 4 term expansion in the first step

M1

$y(3 - h) = 2h + p$

$-2h - p = y(h - 3)$ *Dependent on first M mark*

M1 dep

$y = \frac{2h+p}{3-h}$

$\frac{-2h-p}{h-3} = y$

A1

[4]

Q3.

$2h - 2y = 5y + 3$

$2h - y = 5y + 3$ *is M0*

M1

$2h = 5y + 2y + 3$ or $2h = 7y + 3$

for correct rearranging after attempt at expansion seen

2h = 5y + y + 3 is M1

2h = 5y + 2y + 3 is M0

M1

$h = \frac{7y+3}{2}$ or $h = \frac{5y+2y+3}{2}$

Must see h = …

ft if M1 M0 or M0 M1 awarded

A1 ft

Alternative method

$h - y = \frac{5y+3}{2}$

$h - y = 2.5y + 1.5$

M2

$h = \frac{5y+3}{2} + y$ or $h = \frac{5y+2y+3}{2}$

$h = 2.5y + y + 1.5$ or $h = 3.5y + 1.5$

Must see h = …

A1 ft

[3]

Q4.

$r = p - 3$

B1

[1]

Q5.

$y(4x + 9)$ or $4xy + 9y$

oe

M1

$4xy + 9y = 8 - 3x$

oe

M1dep

$4xy + 3x = 8 - 9y$

or $x(4y + 3) = 8 - 9y$

oe

M1dep

$x = \frac{8-9y}{4y+3}$

SC3 $\frac{8-9y}{4y+3}$

A1

Additional Guidance

$y \times (4x + 9)$

M1

$x = \frac{8-9y}{4y+3}$ seen with answer $\frac{8-9y}{4y+3}$

M1M1M1A1

[4]

Q6.

(a) y^{11}

B1

(b) w^8

B1

(c) $y - 2 = 3x$ or $\frac{y}{3} = x + \frac{2}{3}$ or $-3x = 2 - y$

M1

$\frac{y-2}{3} = x$ or $x = \frac{2-y}{-3}$ *oe*

SC1 for $x = \frac{2-y}{3}$ *or* $x = \frac{y+2}{3}$

A1

[4]

Q7.

$a = 3$

B1

$(2x + 1)(ax + b) = 2ax^2 + ax + 2bx + b$

or

$(2x + 1)(3x + b) = 6x^2 + 3x + 2bx + b$

M1

$3x + 2bx = -5x$ or $3 + 2b = -5$

or $3x - 8x = -5x$

M1dep

$b = -4$ and $c = -4$

A1

[4]

Q8.

$8x^2 - 12xy - 10xy + 15y^2$

Allow one term error

M1

$8x^2 - 12xy - 10xy + 15y^2$

A1

$8x^2 - 22xy + 15y^2$

ft their four terms if M1 awarded
Do not ignore fw for final mark

A1 ft

[3]

Q9.

(a) $6x^2 + 4x + 15x + 10$

Allow one sign or arithmetic error. Must see 4 terms including term in x^2, 2 terms in x and a constant term

M1

$6x^2 + 19x + 10$

***NB** Answer only*
$6x^2 + 19x + b$ implies M1
$ax^2 + 19x + 10$ implies M1
Do not award if incorrect further work

A1

(b) $9x^4y^8$

B1 for two of 9, x^4 or y^8
B1 maximum for any use of × signs
B0 for any addition eg $9 + x^4 + y^8$
Deduct one mark for incorrect further work

B2

[4]

Q10.

$c^2 = 16$ or $c = 4$ or $c = -4$

M1

$3x^2 + 3cx + cx + c^2$ $(= 3x^2 - dx + 16)$

$3x^2 + 12x + 4x + 16$ or $3x^2 - 12x - 4x + 16$ oe

M1

$c = 4$ **and** $c = -4$ or $4c = -d$
or $16 = -d$ or $-16 = -d$

oe

M1

$c = 4$ and $d = -16$
or
$c = -4$ and $d = 16$

One pair of answers or
all four answers seen but not paired

A1

$c = 4$ and $d = -16$
and
$c = -4$ and $d = 16$

Both pairs of answers must be correctly paired
*SC3 for one correct pair or both correct pairs or all four answers seen but not paired from **no** working*

A1

[5]

Q11.

$6x^2$ (+) $3x$ (+) $8x$ (+) 4

4 terms, including one in x^2, with at least 3 correct

M1

$6x^2 + 3x + 8x + 4$

A1

$6x^2 + 11x + 4$

ft correct simplification of their four terms, including one in x^2
SC1 $6x^2 + ax + 4$, $a \neq 0$, M1 not awarded

A1ft

[3]

Q12.

$c(d + 3) = 4 - d$

M1

$cd + 3c = 4 - d$

M1dep

$cd + d = 4 - 3c$
or $d(c + 1) = 4 - 3c$

M1dep

$d = \frac{4 - 3c}{c + 1}$

oe $d = \frac{-4 + 3c}{-c - 1}$

A1

[4]

Q13.

$w = \frac{y}{2x}$

B1

[1]

Q14.

$y - 9 = \frac{x}{3}$
or $3y = x + 27$
or $3y - 27$
or $3(y - 9)$

correct first step in rearranging
or the correct rearrangement without x =

M1

$x = 3y - 27$
or $x = 3(y - 9)$

Accept $3y - 27 = x$
or $3(y - 9) = x$

A1

Additional Guidance

Accept $-27 + 3y$ for $3y - 27$ throughout

$x = 3y - 27$ in working with answer $3y - 27$

M1A1

$x = (y - 9)3$ (unless recovers)

M1A0

$x = y3 - 27$ (unless recovers)

M1A0

Multiplication signs are acceptable for M1 but not A1

$x = 3 \times y - 27$

M1A0

$3 \times y = x + 3 \times 9$

M1

[2]

Q15.

$6x^2 - 16xy + 15xy - 40y^2$

Allow one error

M1

$6x^2 - 16xy + 15xy - 40y^2$

Fully correct

A1

$6x^2 - xy - 40y^2$

ft their four terms

A1ft

Q16.

$6x^2 - 15xy + 2xy - 5y^2$

3 terms correct

M1

$6x^2 - 15xy + 2xy - 5y^2$

A1

$6x^2 - 13xy - 5y^2$

ft from four terms

A1 ft

[3]

Q17.

$y^2 - 4y + 5y - 20$

Allow 1 error

M1

$y^2 + y - 20$

A1

[2]