M1. $w - 3 = \sqrt{t}$

or $\sqrt{t} = w - 3$ *or* $(w - 3)^2$ *or* $-\sqrt{t} = 3 - w$

M1

$t = (w - 3)^2$

oe ignore fw

SC1 $t = (w + 3)^2$

A1

[2]

M2.

(a) Ticks 'T' is always odd'

Any indication

B1

Odd × 5 (or odd) is odd **and**
odd – 2 (or even) is odd
or
5 × odd ends in 5 so
5 × odd – 2 ends in 3

Strand (ii)

Full explanation with correct box ticked

Q1

(b) $T + 2 = 5n$

$-T - 2 = -5n$ $\quad \frac{T}{5} = n - \frac{2}{5}$

M1

$n = \frac{T+2}{5}$

$n = \frac{-T-2}{-5}$ $\quad n = \frac{T}{5} + \frac{2}{5}$

SC1 $\frac{T+2}{5}$ *or* $\frac{-T-2}{-5}$ *or* $\frac{T}{5} + \frac{2}{5}$

A1

[4]

M3. (a) $12 - x = 15$ or $12 - x = 5 \times 3$

oe $4 - \frac{x}{3} = 5$

M1

$-x$ = their $15 - 12$ or $x = 12 -$ their 15

or $4 - 5 = \frac{x}{3}$

$-1 = \frac{x}{3}$

or $5 - 4 = \frac{-x}{3}$

M1

-3

A1

(b) $3t = s - 4$ or $\frac{s}{3} = t + \frac{4}{3}$

oe

M1

$(t =)\frac{s-4}{3}$ or $(t =)\frac{s}{3} - \frac{4}{3}$ or $(t =)\frac{4-s}{-3}$

oe

SC1 $(t =)\frac{4-s}{3}$ *or* $(t =)\frac{s+4}{3}$

A1

[5]

M4. $x(y - 5) = 2 + 3y$

M1

$xy - 5x = 2 + 3y$

oe

M1dep

$xy - 3y = 2 + 5x$ or $y(x - 3) = 2 + 5x$

or $-5x - 2 = 3y - xy$ *or* $-5x - 2 = y(3 - x)$

M1 dep

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

or $y = \frac{-5x-2}{3-x}$

SC3 for $y = \frac{7}{3-x}$ *or* $y = \frac{-7}{3-x}$

only *from an incorrect expansion of* $xy - 5 = 2 + 3y$ *at 2nd stage*

A1

[4]

M5. $w - x = y(2x - 3)$ *oe*

multiplying through by y

M1

$w - x = 2xy - 3y$ *oe*

M1

multiplying out bracket
(this line gets M2 even if 1st line not seen)

$w + 3y = 2xy + x$ *oe*

collecting terms

M1

$x = \frac{w+3y}{2y+1}$ *oe*

A1

[4]

M6. $2h - 2y = 5y + 3$

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

M7. (a) $8x^4y^7$

B1 for two out of three parts correct eg $6x^4y^7$

B2

(b) $4y(5y - 2x)$

B1 for $4y(? - ?)$

or $4(5y^2 - 2xy)$ *or* $8y(2.5y - x)$ *or* $y(20y - 8x)$ *or* $8(2.5y^2 - xy)$ *or* $2(10y^2 - 4xy)$ *or* $2y(10y - 4x)$

B2

(c) $w - y = \frac{x}{r}$

$wr = yr + x$ *or* $-x = yr - wr$ *oe*

M1

$r(w - y) = x$

$wr - yr = x$

Must have $x = \ldots$ *oe*

A1

(d) $6x^2y^2$

B1 for $18x^3y^3$ *or any other common multiple*

B2

[8]

M8. $3y - p = 2h + hy$

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]