M1.

(a) $y = 3x + 2$

B1

(b) (PQ =) 3 − 0 or 3

Accept if seen on LHS of ratio (PQ) or as denominator in a gradient calculation for PR

M1

(9, 14) or $x = 9$ or (RS =) 9 − 4 or 5

M1

3 : 5

A1

[4]

M2.

$y = 3x - 2$

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

B2 $y = -3x - 2$

or $3x - 2$

or $y = 3x + c$

or *gradient* $= \frac{6}{2}$ *or* 3

and intercept = −2

B1 $y = mx - 2$

or $y = -3x + c$

or $-3x - 2$

or $3x + c$

or *gradient* $= \frac{6}{2}$ *or* 3

or *intercept = −2*

B3

Additional Guidance

Gradient is implied by correct division

[3]

M3.

10 = −2(−3) + c or c = 4

y − 10 = −2(x − (−3)) or y = −2x + c

M1

y = −2x + 4

A1

[2]

M4.

Alternative method 1

A (6, 0) or x = 6 (for A)

May be on diagram or be implied

B1

$\frac{1}{2}$ × their 6 × y = 24

M1

y = 8

Only ft B0 M1

A1ft

their 8 = 12 − 2x

M1

x = 2

ft their y

SC2 Answer (8, 2) with no valid working

SC1 B (0, 12) or y = 12 (for B)

A1ft

Alternative method 2

A (6, 0) or x = 6 (for A)

May be on diagram or be implied

B1

B (0, 12) or y = 12 (for B)
and

(area OAB =) $\frac{1}{2}$ × their 6 × 12 or 36
and

$\frac{1}{2}$ × 12 × x = their 36 – 24

M1

$x = 2$

Only ft B0 M1

A1ft

$y = 12 - 2 \times$ their 2

M1

$y = 8$

ft their y

SC2 Answer (8, 2) with no valid working

SC1 B (0, 12) or y = 12 (for B)

A1ft

Alternative method 3

A (6, 0) or $x = 6$ (for A)

May be on diagram or be implied

B1

$\frac{1}{2} \times$ their $6 \times y = 24$

M1

$y = 8$

Only ft B0 M1

A1ft

B (0, 12) or $y = 12$ (for B)
and

(area OAB =) $\frac{1}{2} \times$ their 6×12 or 36
and

$\frac{1}{2} \times 12 \times x =$ their $36 - 24$

M1

$x = 2$

Only ft B0 with 2nd M1 gained

SC2 Answer (8, 2) with no valid working

SC1 B (0, 12) or y = 12 (for B)

A1ft

Alternative method 4

A (6, 0) or $x = 6$ (for A)

May be on diagram or be implied

B1

B (0, 12) or $y = 12$ (for B)
and

(area OAB =) $\frac{1}{2} \times$ their 6×12 or 36
and

$\frac{1}{2} \times 12 \times x =$ their $36 - 24$

M1

$x = 2$

Only ft B0 M1

A1ft

$\frac{1}{2}$ × their 6 × y = 24

M1

$y = 8$

Only ft B0 with 2nd M1 gained
SC2 Answer (8, 2) with no valid working
SC1 B (0, 12) or y = 12 (for B)

A1ft

Alternative method 5

A (6, 0) or $x = 6$ (for A)

May be on diagram or be implied

B1

B (0, 12) or $y = 12$ (for B)
and

(area OAB =) $\frac{1}{2}$ × their 6 × 12 or 36
and

$\frac{24}{\text{their } 36} \times 12$

M1

$y = 8$

Only ft B0 M1

A1ft

B (0, 12) or $y = 12$ (for B)
and

(area OAB =) $\frac{1}{2}$ × their 6 × 12 or 36
and

$\frac{\text{their } 36 - 24}{\text{their } 36} \times \text{their } 6$

M1

$x = 2$

Only ft B0 with 2nd M1 gained
SC2 Answer (8, 2) with no valid working
SC1 B (0, 12) or y = 12 (for B)

A1ft

[5]

M5.

$m = 5$

B1

$3 = 5 \times 4 + c$ **or** $3 = 20 + c$

$y - 3 = 5\,(x - 4)$ or $y - 3 = 5x - 20$ oe

M1

$c = -17$

SC1 for $y = -0.2 \times + 3.8$ (using the perpendicular gradient)

A1

[3]

M6.

Scale on the y-axis identified correctly

e.g. Intercept of line *A* with y-axis identified as 2

oe Must be unambiguous identification

B1

Scale on the x-axis identified correctly

e.g. Intercept of line *A* with x-axis identified as 2

oe Must be unambiguous identification

B1

Correct attempt at gradient

e.g. $\frac{\text{their } 5}{\text{their } 6}$

ft their scales

M1

$y = \frac{5}{6}x - 5$ **or** $6y = 5x - 30$

ft B0 B1 M1 or B1 B0 M1

oe $\frac{5}{6}x - 5$ is B2 M1 A0

A1ft

[4]

M7.(a) $4n + 2$

B1

(b) ($4n$, their $4n + 2$)

ft their (a)

B1ft

(c) $y = x + 2$

oe all equations

B1 $y = mx + c$ with $m = 1$ or $c = 2$

or

$4n$ circled in (a) and $y = x$

or

$6n$ circled in (a) and $y = \frac{3x}{2}$

or

$6n + 2$ circled in (a) and $y = \frac{3x}{2} + 2$

B2

[4]

M8.(a) C&O frequency = 5

B1

Three tally marks in BBQ

B1

(b) Key 1 circle represents 2 people *oe*

Half circle represents 1 person

One and a half circles represents 3 people

B1

6 circles in Plain

and

2.5 circles in C&O

*B1 6 circles in Plain **or** 2.5 circles in C&O*
ft their fully completed key
Only award B2ft if BBQ row is also correct for their key
B1ft one row matching their key

B2ft

[5]

M9. Gradient of AC = −2 or $y = -2x + 4$

M1

0 = their $-2 \times 1 + c$

M1dep

$c = 2$ **and** $y = -2x + 2$

A1

Alternative method 1

Line drawn parallel to AC passing through (0, 2) and B

M1

Calculating or stating gradient of both lines as −2

eg $y = -2x + 2$ **and** $y = -2x + 4$

M1dep

Reference to intercept being 2 and stating $y = -2x + 2$

A1

Alternative method 2

Line drawn parallel to AC passing through (0, 2) and B

M1

Intercepts are (0, 2) and (1, 0) so equation is (y intercept) × x + (x intercept) × y = (y intercept) × (x intercept)

M1dep

Therefore (2) × x + (1) × y = (2)(1) ➔ $2x + y = 2$

A1

[3]

M10. $3y + 12 = 0$

Attempt to find y-intercept

or the value of y when x = 0

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

M1

$y = -4$

May be seen on diagram

A1

Gradient = $\frac{4}{6}\left(=\frac{2}{3}\right)$ or $\frac{0-(-4)}{6-0}$

oe ft their −4

Gradient must be positive

M1

$y = \frac{2}{3}x - 4$

oe

SC3 for $y = \frac{-2}{3}x - 4$

A1 ft

[4]

M11. A = (3, 0)

B1

B = (0, 6)

B1

C = (−3, 12)

ft from their A and B

C= (−3, 12) seen scores B3

B1ft

Gradient of $DC = \frac{12-0}{-3-(-7)} (=3)$

or

Uses $y = mx + c$ and substitutes the coordinates of D and their C

M1

oe

$0 = 7m + c$ and $12 = -3m + c$

ft their C

$y = 3x + 21$

oe

A1

[5]

M12. B and D

B1 for 1 correct (and 1 incorrect)

or 2 correct and 1 incorrect

B2

[2]

M13. Attempt to work out gradient

e.g. 3 ÷ 6 seen oe

Right-angled triangle drawn on diagram

M1

$m = \frac{1}{2}$ or $c = 4$ seen or implied

e.g $\frac{1}{2}x + 4$

oe

Gradient = $\frac{1}{2}$ *or Intercept = 4*

M1

$y = \frac{1}{2}x + 4$

oe

A1

[3]

M14. 7 + 6 or 1 + 12

oe

M1

13

B = (4, 13) or C = (0, 13) seen is M1 A1

A1

$y = 3x + 13$

SC1 $y = 3x + c$

$c \neq 0$ and $c > 0$ but not $c = l$

$C = 3x + c$ $c \neq 13$ scores no marks

SC2 for $C = 3x + 13$

A1

[3]