M1.

   (a)   − 4 and 2

                  B1 for each value in correct place in table

                                                                  B2

Additional Guidance

− 4 when $x = -2$ and 2 when $x = 1$

   (b)   6 or 7 of *their* points plotted correctly

                  tolerance $\pm\dfrac{1}{2}$ *square*

                                                                    M1

        Fully correct smooth curve

                  tolerance $\pm\dfrac{1}{2}$ *square*

                                                                    A1

Additional Guidance
Two curves drawn: Mark the better curve

   (c) $y = -3$ correctly drawn

                  Any length > 2 cm

                  tolerance $\pm\dfrac{1}{2}$ *square*

                                                                    B1

   (d)   −1.8 and 2.8

                  *ft **their** graph or correct*

                  tolerance $\pm\dfrac{1}{2}$ *square*

                                                                 B1ft

Additional Guidance
If quadratic formula used, answers are −1.79 and 2.79
Do not accept embedded answers or coordinates
Must have two answers for ft
If 3 or more answers on ft treat as choice

                                                                         [6]

M2.

(a)   – 6, 3 and – 1

B1 for 1 or 2 correct

B2

(b)   their 6 or 7 points plotted

$\pm \dfrac{1}{2}$ *square tolerance*

M1

Fully correct smooth curve

$\pm \dfrac{1}{2}$ *square tolerance*

A1

(c)   Two correct readings from their graph at $y = 15$

B1 for each

$\pm \dfrac{1}{2}$ *square tolerance*

B2ft

Additional Guidance
Accept the answers given in coordinates provided correct for their curve
Answers must come from their graph

[6]

M3.(a)   −2, −3, −2

B1 for 1 or 2 correct

B2

(b)   their 5 points plotted

Allow one error

$\pm \dfrac{1}{2}$ *square*

M1

Fully correct with a smooth curve

$$\pm \frac{1}{2} \text{ square}$$

A1

(c)   Correct reading at $y = 0.5$
            ft their curve
            $$\pm \frac{1}{2} \text{ square}$$

B1 ft

Second correct reading at $y = 0.5$
            ft their curve
            $$\pm \frac{1}{2} \text{ square}$$
            Award SC1 for [1.8, 1.9] and [−1.9, −1.8] only if graph is missing.

B1 ft

[6]

M4.

Gives coordinates of at least two points

M1

Correctly plots their points

M1

Correct graph from $x = −3$ to $3x$

A1

[3]

M5.(a)   1, 0, 4
            B1 for 2 correct

B2

(b)   their 5 points plotted correctly

$\pm\ \dfrac{1}{2}$ *square*

M1

Fully correct smooth curve

$\pm\ \dfrac{1}{2}$ *square*

A1

[4]

M6.(a)   1, 0, 4

B1 for 2 correct

B2

(b)   their 5 points plotted correctly

$\pm\ \dfrac{1}{2}$ *square*

M1

Fully correct smooth curve

$\pm\ \dfrac{1}{2}$ *square*

A1

(c)   Translation of their graph 3 units in negative *y* direction

$\pm\ \dfrac{1}{2}$ *square B1 for their translated 5 points plotted*

or fully correct graph
(−2, 1) etc
B1 for clear intention to translate 3 units in negative y direction

B2ft

[6]

M7. (a) −4, −3 and 5 All three in correct position in table

B1 one correct in correct position

B2

(b) Their seven points plotted correctly

$\pm \dfrac{1}{2}$ *square*

B1 for 5 or 6 points correct

B2 ft

Six or seven points joined by smooth curve

Must be a U shape

B1

(c) Line drawn at $y = 2$

B1 ft

(d) ($x =$) −2.45

ft their graphs $\pm \dfrac{1}{2}$ square

Accept [−2.6, −2.3]

Accept − $\sqrt{6}$

B1 ft

($x =$) 2.45

ft their graphs $\pm \dfrac{1}{2}$ square

Accept [2.3, 2.6]

Accept $\sqrt{6}$

Note: if coordinates are given, mark the x coordinates only

Award B1 B0 if both are correct.

B1 ft

[8]

M8.(a)   −1, −3, 5

>   *B1 for 1 or 2 correct*

                                                                    B2

(b)   Axes drawn and labelled

>   *B1 for x-axis from −2 to 2 (minimum)*
>   *B1 for y-axis from −3 to 5 (minimum)*
>   *Condone one missing x or y label*

                                                                    B2

Points plotted

>   *ft 5 points*

                                                                    B1ft

Smooth curve through their 5 points

>   *Must be a U shape*

                                                                    B1ft
                                                                    [6]

M9.(a)   4

                                                                    B1

−4

                                                                    B1

(b)   their 7 points plotted correctly

> $\pm \dfrac{1}{2}$ *square*
>   *B1 ft for their 5 or 6 points plotted correctly*

                                                                    B2 ft

Smooth curve

through their 7 points ± $\frac{1}{2}$ square
Must be a U shape

B1 ft

(c)   [2.2, 2.4] or $\sqrt{5}$

ft their graph ± $\frac{1}{2}$ square

B1 ft

[−2.2, −2.4] or − $\sqrt{5}$

ft their graph ± $\frac{1}{2}$ square

B1 ft

[7]