M1.

ab or −12
and
−3, 8 and −12 seen

B1 for $\left(\dfrac{b}{a} =\right)$ *−3 or (a − b =) 8*

or (ab =) −12

B2

[2]

M2.

5 × 7 (+) 9 × −2
or 35 or 18

M1

17

A1

[2]

M3.

16 seen　or　32 seen　or　27 seen

M1

(2×) 16 (+) 27

or　32 (+) 27

M1

59
　　　　　　SC2　43

A1

[3]

M4.

12.5 × 17.6　or　220

M1

$$\frac{7(14 + \text{their } 220)}{3}$$

                  M1

546 or 546.00

            Strand(i)   ft their answer in correct money notation

                  Q1ft

                     [3]

M5.

(a)   Substitutes and evaluates correctly to show that the answer is even

        e.g.

$5^2 + 3^2 = 34 \quad or \quad 3^2 + 5^2 = 34$

$25 + 9 = 34 \quad or \quad 9 + 25 = 34$

$7^2 + 3^2 = 58 \quad or \quad 3^2 + 7^2 = 58$

$49 + 9 = 58 \quad or \quad 9 + 49 = 58$

$7^2 + 5^2 = 74 \quad or \quad 5^2 + 7^2 = 74$

$49 + 25 = 74 \quad or \quad 25 + 49 = 74$

Ignore fw

                  B1

Additional Guidance
One correct example required with or without incorrect examples
e.g. $2^2 + 3^2 = 13$, $5^2 + 3^2 = 34$

                  B1

(b)   Substitutes and evaluates correctly to show that the answer is odd

        e.g.

$3^2 + 2^2 = 13 \quad or \quad 2^2 + 3^2 = 13$

$9 + 4 = 13 \quad or \quad 4 + 9 = 13$

$5^2 + 2^2 = 29 \quad or \quad 2^2 + 5^2 = 29$

$25 + 4 = 29 \quad or \quad 4 + 25 = 29$

$7^2 + 2^2 = 53 \quad or \quad 2^2 + 7^2 = 53$

$49 + 4 = 53 \quad or \quad 4 + 49 = 53$

Ignore fw

                  B1

Additional Guidance
One correct example required with or without incorrect examples
e.g. $2^2 + 3^2 = 13$, $5^2 + 3^2 = 34$

B1
[2]

M6. $\dfrac{1}{2} \times \dfrac{1}{3}$

oe

M1

$\dfrac{1}{6}$

oe

A1
[2]

M7. 64 × 2.5 or 160

or 93 × 2.5 or 232.5 or 232.50
oe
93 − 64 or 29

M1

64 × 2.5 + 152 or 312

or

93 × 2.5 + 137 or 369.5
oe
29 × 2.5 or 72.5 or 72.50
or
152 − 137 or 15

M1dep

64 × 2.5 + 152 or 312

and

93 × 2.5 + 137 or 369.5
oe
29 × 2.5 or 72.5 or 72.50
and

152 − 137 or 15

M1dep

their 369.5 − their 312
　　　　　　oe
　　　　　　72.5 − 15

M1dep

57.50

　　　　　Strand (i)
　　　　　57.5 implies M4Q0

Q1
[5]

M8.(a)　　25

　　　　　Embedded ie 25 − 7 = 18 B0

B1

(b)　　An equation whose solution is 8
　　　　　Equation does not have to be linear

　　　　　eg $x^2 = 64$

　　　　　Accept $x = 8$

B1

(c)　　Two values where $b - a = 10$
　　　　　Accept 0, negative numbers and non-integers

　　　　　B1 for any two values where $a + b = 10$

　　　　　or for any two values where $a - b = 10$

　　　　　B1 $10 + a = b$ oe seen

B2
[4]

M9.(a)   8 × 7 or 56

M1

8 × 7 + 20 or their 56 + 20

M1dep

76
          SC2 for 216 or 196

A1

(b)   Any correct trial for [1, 20] hours
              eg 8 × 1 + 10 = (£)18

M1

A second correct trial for [1, 20] hours

M1dep

15

A1

Alternative Method

Any correct trial for subtracting bonus and dividing by the number of hours
          eg 150 − 40 = 110
          110 ÷ 8 = 13.75

M1

A second correct trial for subtracting bonus and dividing by the number of hours

M1dep

15

A1
          [6]

M10.(a)   −7

B1

5

B1

(b)   At least 2 points correctly plotted
May be implied from a correct line

M1

Straight ruled line drawn from −3 to 3
± $\dfrac{1}{2}$ square tolerance

A1
[4]

M11.
  2 × 5   or   10
  or   3 × 4   or   12
  or   6 × $\dfrac{1}{2}$ or   3

M1

10 and 12 and 3

A1

19

ft correct calculation with their three values, two of which must be correct

A1ft
[3]

M12.(a) $x(x + 1)$

B1

Additional Guidance

Accept $(x + 1) x$ B1

$x(x + 1$ condone missing final bracket   B1

(b) $(−3)^2 + −3$ or 9 seen
               oe
               do not accept if 9 is the final answer

M1

6
               SC1 −12

A1

Alternative method

−3 × −2
               use of factorisation from part (a)

M1

6
               SC1 −12

A1

Additional Guidance

Do not accept 6 from 3 + 3 = 6   M0A0

(c) $n^2 + n$ is always even
              any clear indication

B1

odd $\times$ odd = odd or odd^2 = odd

and

odd + odd = even
              Strand (ii)
              fully correct reason

Q1

Alternative method

$n^2 + n$ is always even
              any clear indication

B1

(n is odd, so) $n + 1$ is even

and

odd $\times$ even = even
              Strand (ii)
              fully correct reason
              use of factorisation from part (a)

Q1

Additional Guidance

Ignore further working unless a clear contradiction

[5]

M13.(a)   2700 ÷ 180

or 15 seen
              oe

M1

Beams = 30

or Posts = 16

A1

Beams = 30

and Posts = 16
>   *ft their 15 only if M1A0*
>   *SC1 for Beams = 16 and Posts = 30*

A1ft

Additional Guidance

ft only from M1A0:
ft their 15 + 1 for number of posts
ft their 15 × 2 for number of beams

(b)   5 × 40 or 200

or 9 × 21 or 189

M1

389
>   *SC1 for 465*

A1

Additional Guidance

465 (mixed up the beams and the posts)

SC1
[5]

M14. 2 × 11 **and** 3 × 5

or

22 or 15

)

oe

M1

37

A1

[2]

M15.(a)   75

B1

(b) $(27 - 5) \div 2$

Condone omission of brackets

M1

11

A1

3

ft (their 11 − 5) ÷ 2 if A0 awarded
SC1 for 0.75
*SC1 for 24.5 **and** 22*

B1ft

Alternative Method 1

$2x + 5 = 27$

M1

11   or $2(2x + 5) + 5 = 27$ oe

or $(27 - 15) \div 4$

A1

3

A1

Alternative Method 2

Two fully correct trials eg any two of
$u_1 = 1$, $u_2 = 7$, $u_3 = 19$
$u_1 = 2$, $u_2 = 9$, $u_3 = 23$
$u_1 = 4$, $u_2 = 13$, $u_3 = 31$
$u_1 = 5$, $u_2 = 15$, $u_3 = 35$

M1

Fully correct trial with first term 3 ie $u_1 = 3$, $u_2 = 11$, $u_3 = 27$

M1dep

3

A1

[4]

M16. $2 \times 5 + 1$ or   11

or $3 \times 5 - 2$ or   13

or $5 + 7$ or   12
                    oe

M1

$(2 \times 5 + 1 =)$ 11

and $(3 \times 5 - 2 =)$ 13

and $(5 + 7 =)$ 12

A1

13

ft their largest value

A1ft

[3]