Q1.

Alternative method 1

4 × 15 or 60
or 2 × 10 or 20
or 80

oe

M1

$\frac{10}{100} \times$ their 80 or 8
or 1.1 and working for first M1 seen

oe
$\frac{10}{100} \times$ *their 60 or 6 or 66*
or $\frac{10}{100} \times$ *their 20 or 2 or 22*

M1dep

their 80 + their 8
or 1.1 × their 80
or 88

oe
their 60 + their 6 + their 20 + their 2
or 1.1 × their 60 + 1.1 × their 20
or their 66 + their 22

M1dep

0.03 × their 88 or 2.64
or their 88 × 1.03

oe

M1dep

90.64(p)

A1

Alternative method 2

$\frac{10}{100} \times 15$ or 1.5(0) and $\frac{10}{100} \times 10$ or 1 or 1.1 seen

oe

M1

15 + their 1.5(0) or 15 × 1.1 or 16.5(0)
and
10 + their 1 or 10 × 1.1 or 11

oe
27.5(0) implies M2

M1dep

their 16.5(0) × 0.03 or 0.495
and their 11 × 0.03 or 0.33

or
their 16.5(0) × 1.03 or 16.995
and their 11 × 1.03 or 11.33

oe

4 × their 16.5(0) + 2 × their 11

or their 66 + their 22

or 88

M1dep

their 0.495 × 4 + their 0.33 × 2
or 1.98 + 0.66 or 2.64
or
their 16.995 × 4 or 67.98
and their 11.33 × 2 or 22.66

oe

0.03 × their 88 or 2.64

or their 88 × 1.03

M1dep

90.64(p)

A1

Alternative method 3

4 × 15 or 60
or 2 × 10 or 20
or 80

oe

M1

$\frac{10}{100} \times$ their 80 or 8
or $\frac{13}{100} \times$ their 80 or 10.4(0)
or 1.13 and working for first M1 seen

oe

$\frac{13}{100} \times$ *their 60 or 7.8(0)*

or $\frac{13}{100} \times$ *their 20 or 2.6(0)*

M1dep

their 80 + their 10.4(0)
or 1.13 × 80 or 90.4(0)
or
0.03 × their 8 or 0.24

oe

60 + their 7.8(0) + 20 + their 2.6(0)

or 67.8(0) + 22.6(0)

M1dep

their 80 + their 10.4(0)
or 1.13 × 80 or 90.4(0)
and
0.03 × their 8 or 0.24

oe

M1dep

90.64(p)

A1

[5]

Q2.

Complete, correct build up method
or
0.51 × 400

eg 400 ÷ 2 + 400 ÷ 100 oe

M1

204

A1

[2]

Q3.

Alternative method 1

(10% =) 19 or (50% =) 95 or (20% =) 38 or (30%) = 57 or (5% =) 9.5 or (1% =) 1.9 etc

Any correct comparison of a percentage and a value except 100% = 190

M1

Any combination of values that make 35% eg 95 – their 19 – their 9.5, their 19 + their 19 + their 19 + their 9.5
or 66.5

Must be correct values or valid method shown leading to their values

256.5 or 256 $\frac{1}{2}$ *or 256.50p*

M1dep

256.50

Strand (i) ft 190 + their 35% if M1, M0 awarded

Must be correct money notation

Q1ft

Alternative method 2

0.35 or 1.35 seen or $\frac{35}{100}$ or $\frac{135}{100}$ or 135%

M1

0.35 × 190 or 1.35 × 190 or 66.5

or $\frac{135}{100} \times \frac{190}{1}$ or $\frac{35}{100} \times \frac{190}{1}$

oe 256.5 or 256 $\frac{1}{2}$ or 256.50p

M1dep

256.50

Strand (i) Must be correct money notation

Q1

Additional Guidance

19

M1

38
5% = 19 ÷ 2 = 8
35% = 19 + 38 + 8 = 65

M0dep

255

Q1ft

10% = 19

M1

20% = 38
5% = 8
35% = 19 + 38 + 8 = 65

M1dep

255

Q0

10% = 19

M1

20% = 38
5% = 9.5
35% = 19 + 38 + 9.5 = 64.5

M1dep

254.50

Q0

190 × 1.35
Uses box method to get 256.5
265.50

Transcription error.

M1
M1dep
Q1

10% = 19

M1

20% = 36
5% = 9.5
35% = 19 + 36 + 9.5 = 44.5

M0dep

224.50

Q0ft

[3]

Q4.

Alternative method 1

60 × 40 or 2400

oe

M1

their 2400 − 2000 or 400
or 2000 − their 2400

M1dep

$\frac{\text{their } 400}{2000}$ (× 100) or 0.2

oe

M1dep

20(%)

A1

Alternative method 2
60 × 40 or 2400

oe

M1

their 2400 − 2000 or 400

or 2000 − their 2400

M1dep

10% = 2000 ÷ 10 or 1% = 2000 ÷ 100 **and** correctly finds multiplier using build up or division to find percentage equivalent to total their 400

oe

Correct build up to find percentage equivalent to total their (their 2400 − 2000) or their (2000 − their 2400) implies M3

M1

20(%)

A1

Alternative method 3
60 × 40 or 2400

M1

$\frac{\text{their } 2400}{2000}$ (× 100) or 120(%) or 1.2

M1dep

their 120 − 100 or their 1.2(0) − 1(.00)
or 100 − their 120
or 1(.00) − their 1.2(0) or 0.2

oe

M1dep

20(%)

A1

Additional Guidance
20% on answer line and no working

M1M1M1A1

480 × 5 (= 2400) from 5 years scores minimum M1
60 × 40 = 1800 and 200 scores minimum M1M1

$60 \times 40 = 1800$ and 200 and $\frac{200}{2000}$

M1M1M1A0

$60 \times 40 = 1800$ and $\frac{200}{2000}$

M1M1M1A0

$\frac{2000}{\text{their } 2400}$ (=1.2) does not score second method mark on ALT3

[4]

Q5.

400 × 1.07

B1

[1]

Q6.

(a) 15.6 ÷ 4 or 156 ÷ 40
or
$\frac{156}{100} \times \frac{100}{40}$

Correctly multiplying both numbers by the same number so that 0.4 becomes an integer

M1

3.9

oe

SC1 digits 39

A1

(b) Any decimal greater than $0.\dot{6}\dot{3}$ and less than $0.\dot{7}$

B1 Any fraction or percentage between $\frac{7}{11}$ *and* $\frac{7}{9}$ *(eg* $\frac{7}{10}$ *or 70%) or*

Correctly evaluates $\frac{7}{11}$ *to 0.63... or* $\frac{7}{9}$ *to 0.77...*

B2

(c) Any correct fraction

eg $\frac{83}{200}, \frac{415}{1000}, \frac{41}{99}, \frac{41}{98}, \frac{42}{101}, \frac{42}{102}$

B1 $\frac{41.5}{100}$

or

any 'correct' fraction with non-integer numerator and/or denominator

or

any decimal between 41% and 42%

B2

[6]

Q7.

54

B1

[1]

Q8.

50 × 3

B1

[1]

Q9.

Alternative method 1

90 is 75%

oe

M1

90 ÷ 75 × 100

oe

M1dep

120

M1

$\frac{1}{3} \times 120$ or 40

M1

120 – 40 = 80

or 120 ÷ 3 × 2 = 80

A1

Alternative method 2

80 is two-thirds or 80 is 66.6(…)(%)

oe

M1

80 ÷ 2 × 3

oe

M1dep

120

M1

$\frac{25}{100}$ × 120 or 30 or 75% or $\frac{75}{100}$

oe

A1

120 – 30 or 90 or $\frac{75}{100}$ × 120

and

90 – 10 = 80

A1

[5]

Q10.

51 + 34 + 30 + 17

or 132

M1

(0) + 8 + 20 + 43 + 37 + 51 + 34 + 30 + 17

or their 132 + 8 + 20 + 43 + 37

or their 132 + 108

or 240

M1

$\frac{60}{100}$ × their 240

$\frac{\text{their } 132}{\text{their } 240} \times 100$

M1

144

55 (%)

A1

No stated or implied

Strand (iii) Correct conclusion for their values dependent on method marks.

Q1ft

Alternative Method

8 + 20 + 43 + 37

or 108

M1

(0) + 8 + 20 + 43 + 37 + 51 + 34 + 30 + 17

or their 108 + 51 + 34 + 30 + 17

or their 108 + 132

or 240

M1

$\frac{40}{100}$ × their 240

$\frac{\text{their } 108}{\text{their } 240} \times 100$

M1

96

45 (%)

A1

No stated or implied

Strand (iii) Correct conclusion for their values dependent on method marks.

Q1ft

[5]

Q11.

Alternative method 1

53 – 46 or 7

or 53 million – 46 million

or 7 million

oe

M1

$\frac{7}{46} (\times 100)$ or 0.152 (...)

oe

Accept 0.15 if correct method shown

M1dep

15.2(...) (%)

Accept 15(%) if correct method shown

A1

Alternative method 2

$\frac{53}{46} (\times 100)$ or 1.152...

or 115.2(...)

M1

1.152... – 1 or 0.152(...)
or 115.2(...) – 100

M1dep

oe

Accept 1.15 if correct method shown

Accept 115 if correct method shown

Accept 0.15 if correct method shown

15.2(...) (%)

Accept 15(%) if correct method shown

A1

Alternative method 3

Any correctly evaluated percentage of 46 (million)

eg

1(%) is 0.46 (million)

5(%) is 2.3 (million)

10(%) is 4.6 (million)

M1

15(%) (increase) is 52.9 (million)
or 15.1(%) (increase) is 52.946 (million)
or 15.2(%) (increase) is 52.992 (million)
or 15.3(%) (increase) is 53.038 (million)
or 15.4(%) (increase) is 53.084 (million)
or 15.5(%) (increase) is 53.13 (million)

oe

15(%) is 6.9 (million)

or 15.1(%) is 6.946 (million)

or 15.2(%) is 6.992 (million)

or 15.3(%) is 7.038 (million)

or 15.4(%) is 7.084 (million)

or 15.5(%) is 7.13 (million)

amd

7 (million)

M1dep

15.2(...) (%)

Accept 15(%) with two of the trials listed above (or better), one with an answer below 53 million (or 7 million), the other with an answer above 53 million (or 7 million)

A1

Additional Guidance

Incorrect number of zeros used for millions cannot score A mark

15(%) scores at least 2 unless clearly from incorrect working

[3]

Q12.

(a) 1400 × 0.11

oe

M1

154

A1

(b) $\frac{4}{5}$ × 295

or 295 ÷ 5 or 59

oe

M1

236

A1

[4]

Q13.

$\frac{150}{800}$ (× 100)

or $\frac{150}{650+150}$ (× 100)

or 0.1875

oe

M1

18.75 or 18.8 or 19

oe

SC1 for 81.25 or 81 or 81.3

A1

Additional Guidance

$\frac{800}{150}$

M0

19 with no working
19 is incorrect only if clearly from wrong working
Build up methods score 0 or 2

M1A1

[2]

Q14.

$\frac{150}{500}$ (× 100)

oe

M1

30

A1

[2]

Q15.

75% = 14 625

oe

14 625 ÷ 3 or 4875

M1

$\frac{14\,625 \times 100}{75}$

or 14 625 ÷ 0.75
or 14 625 ÷ 75
or 195

oe

14 625 + their 4875

or 4 × their 4875

M1dep

19 500

A1

Additional Guidance

14 625 × 75 ÷ 100

M0

[3]

Q16.

Alternative method 1

4200 × 0.38 or 1596

1.38 seen

M1

5796

A1

Alternative method 2

4200 ÷ 10 × 3 + 4200 ÷ 10 ÷ 2 + 4200 ÷ 100 × 3
or 1596

M1

5796

A1

Alternative method 3

4200 ÷ 10 × 4 × 4200 ÷ 100 × 2

M1

or 1596

A1

[2]

Q17.

82.5% or 0.825 used

M3 264 ÷ 0.825 or 320

M1

$\frac{264}{82.5}$ or 3.2

M1dep

their 3.2 × 100 or 320
or their 3.2 × 17.5

M1dep

56

A1

[4]

Q18.

25%

B1

[1]

Q19.

0.875

B1

[1]

Q20.

33 + 75 or 108 seen or 60 + 100 or 160 seen

M1

(33 + 75) ÷ (60 + 100) (× 100) or their 108 ÷ their 160 (× 100) or 0.675 (× 100)

oe

M1dep

67.5 or 68

A1

Additional Guidance

67.5 or 68

M1M1A1

108 ÷ 160 = 0.67
67

M1M1A0

0.675
67

M1M1A0

67 with no working

M0M0A0

[3]

Q21.

Alternative method 1

400 × 0.37 or 4 × 37 or 148
or 1.37 seen

oe

M1

548

A1

Alternative method 2

400 ÷ 10 × 3 + 400 ÷ 10 ÷ 2 +
400 ÷ 100 × 2
or 40 × 3 + 20 + 4 × 2 or 148

oe

M1

548

A1

Alternative method 3

400 ÷ 10 × 4 − 400 ÷ 100 × 3
or 40 × 4 − 4 × 3 or 160 − 12 or 148

oe

M1

548

A1

[2]

Q22.

10% of 20 = 20% of 10

Any unambiguous indication

B1

[1]

Q23.

130% = £2.34
or 2.34 × 1.3
or (£)1.8(0)

oe

M1

their (£)1.8(0) × 1.4

M1dep

2.52

A1

[3]

Q24.

Alternative method 1

6300 × 2.58

oe

M1

16254

A1

Alternative method 2

Fully correct build up method

eg 100% = 6300
and 50% = 6300 ÷ 2 or 3150
and 1% = 6300 ÷ 100 or 63

and

2 × 6300 + their 3150 + 8 × their 63

M1

16254

A1

[2]

Q25.

Alternative method 1

60 × 0.5 or 30

oe

M1

(100 − 60) × 0.2

or 8

oe

M1

38

SC2 0.38

A1

Alternative method 2

Implies boys are 40% and works out 50% of their girl total

eg 60 and 40 seen and $\frac{1}{2}$ *× 60 = 30*

or 120 and 80 seen and $\frac{1}{2}$ *× 120 = 60*

M1

Works out 20% of their boy total

eg 0.2 × 40 or 8

or 0.2 × 80 or 16

M1dep

38

oe

A1

[3]