Q1.

(a) Division set up, with 8 and a remainder 3 seen in correct position

or

830 ≤ answer < 840 but not 834

$$\begin{array}{r} 8 \\ 8\overline{)91^{3}74} \end{array} \quad \text{or} \quad \begin{array}{r} 8 \\ 8\overline{)9\ 1\ 7\ 4} \\ \underline{8}\ \ \underline{8} \\ 3 \end{array}$$

M1

834

A1

Additional Guidance

Build up method or chunking method must lead to 830 ≤ answer < 840 to score M1 or better

(b) $\frac{35}{42}$ (+) $\frac{18}{42}$

oe

fractions with a correct common denominator and at least one correct numerator

M1

$\frac{53}{42}$

oe improper fraction

A1

$1\frac{11}{42}$

oe mixed number

ft for correct conversion of an improper fraction to a mixed number

B1ft

Additional Guidance

For B1ft the mixed number must not be an integer

Beware 5 + 3 = 53

M0

When attempts are made to cancel the fraction, full marks cannot be scored

$\frac{53}{42} = \frac{9}{4} = 2\frac{1}{4}$ (attempt to cancel occurs before conversion to mixed number)

M1A1B0

$\frac{53}{42} = 1\frac{11}{42} = 1\frac{1}{3}$ (attempt to cancel occurs after completely correct answer seen)

M1A1B0

[5]

Q2.

$\frac{5 \times 3}{6 \times 20}$

M1

$\frac{15}{120}$

oe fraction

A1

$\frac{1}{8}$

ft their fraction answer correctly cancelled down into its simplest form

B1ft

[3]

Q3.

A correct pair of fractions meeting all conditions

eg $\frac{1}{9}$ and $\frac{2}{9}$ or $\frac{1}{12}$ and $\frac{1}{4}$

B2

a pair of fractions which add to $\frac{1}{3}$ *but which do not satisfy all conditions*

eg, $\frac{1}{6}$ *and* $\frac{1}{6}$ *or* $\frac{2}{3}$ *and* $-\frac{1}{3}$

or $\frac{1}{3}$ *− any fraction less than* $\frac{1}{3}$ *correctly*

changed to common denominator with at least one numerator correct

B1

$\frac{1}{3}$ *changed to any equivalent fraction*

$\frac{2}{6}, \frac{3}{9}, \frac{4}{12}, \ldots$

or

$\frac{1}{3}$ *− any fraction less than* $\frac{1}{3}$

B3

[3]

Q4.

$\frac{17}{8}(-\frac{2}{3})$

Or $1\frac{9}{8}(-\frac{2}{3})$

M1

Common denominator with at least one numerator correct

ft their fractions

$\frac{51}{24}(-)\frac{16}{24}$ *if correct*

Or *grid method with correct bottom right cell and at least one other cell correct*

M1

$\frac{35}{24}$ or $1\frac{11}{24}$ *oe*

A1

Alternative method 1

Common denominator with at least one numerator correct

eg $2\frac{3}{24} - \frac{16}{24}$ *if fully correct*

Or *grid method with correct bottom right cell and at least one other cell correct*

M1

$1\frac{27}{24} - \frac{16}{24}$

ft their $2\frac{3}{24}$

M1

$\frac{35}{24}$ or $1\frac{11}{24}$

A1

Alternative method 2

Common denominator with at least one numerator correct

eg $2\frac{3}{24} - \frac{16}{24}$ *if fully correct*

Or *grid method with correct bottom right cell and at least one other cell correct*

M1

$2\ -\frac{13}{24}$

Award for subtraction of numerators (one may be wrong)

M1

$\frac{35}{24}$ or $1\frac{11}{24}$

A1

Alternative method 3

$1\frac{1}{3} \div \frac{1}{8}$

M1

Common denominator with at least one numerator correct

eg $\frac{32}{24} \div \frac{3}{24}$ *if fully correct*

M1

$\frac{35}{24}$ or $1\frac{11}{24}$

A1

[3]

Q5.

Correct method to change $\frac{5}{8}$ **and** $\frac{2}{3}$ into fractions with common denominator with at least one correct numerator

eg $\frac{16}{24}, \frac{15}{24}$ *(either way around)*

M1

Correct fractions and No

A1

Alternative method 1

Correct method to calculate $\frac{5}{8}$ of a chosen value **and** $\frac{2}{3}$ of the same value

eg 5 × 40 ÷ 8 and 2 × 40 ÷ 3

or

$\frac{5}{8} \times 40$ *and* $\frac{2}{3} \times 40$

M1

Correct evaluations and No

A1

Alternative method 2

Correct method to change $\frac{5}{8}$ **and** $\frac{2}{3}$ into decimals or percentages

M1

$\frac{5}{8}$ = 0.625 or 62.5(%)

Correct and consistent decimals or percentages

and

$\frac{2}{3}$ = 0.66(6…) or 0.67 or 66(6…)(%)

or 67(%)

and

No

A1

[2]

Q6.

(a) $\frac{1}{12}$ *oe*

eg $\frac{12}{144}$

B1

(b) ($\frac{1}{4}$ **and)** $\frac{2}{4}$

or $\frac{2}{8}$ **and** $\frac{4}{8}$ *oe*

into equivalent form

or 25(%) **and** 50(%)

fractions with common denominator

or 0.25 **and** 0.5

or percentages

or decimals

M1

$\frac{1.5}{4}$ *oe*

eg $\frac{37.5}{100}$ *or 37.5% or 0.375*

A1

$\frac{3}{8}$

oe fraction

Strand (ii)

Q1

Alternative method

$\frac{1}{4} + \frac{1}{2} (= \frac{3}{4})$

M1

$\frac{3}{4} \times \frac{1}{2}$ *oe*

A1

$\frac{3}{8}$

oe fraction

Strand (ii)

Q1

[4]

Q7.

(a) $\frac{19}{7}$

Must be a fraction

B1

(b) $\frac{16}{24}$

B1

(c) $\frac{9}{2} = 4.5$

B1

[3]

Q8.

$\frac{15}{35}$

B1

[1]

Q9.

$\frac{11}{4}$ or $\frac{16}{9}$

oe fraction

M1

$\frac{\text{their } 11 \times \text{their } 16}{4 \times 9}$ or $\frac{176}{36}$

oe fraction

$\frac{11 \times 8}{2 \times 9}$ *or* $\frac{88}{18}$ *or* $\frac{11 \times 4}{9}$ *or* $\frac{44}{9}$

M1dep

$4\frac{8}{9}$

oe mixed number

SC2 $4.\dot{8}$

A1

Additional Guidance

$4\frac{16}{18}$ or $4\frac{32}{36}$

M1M1A1

Working in decimals is SC2 or 0

[3]

Q10.

$\frac{11}{4}$ (×) $\frac{12}{7}$

Converts both fractions to improper with at least one correct

M1

$\frac{\text{their } 11 \times \text{their } 12}{\text{their } 4 \times \text{their } 7}$ or $\frac{132}{28}$

or $4\frac{20}{28}$ or $\frac{33}{7}$

oe fraction

M1dep

$4\frac{5}{7}$

A1

[3]

Q11.

(a) $\frac{5}{20}$ (+) $\frac{14}{20}$

oe fractions with a common denominator
and at least one correct numerator

M1

$\frac{19}{20}$

oe fraction eg $\frac{38}{40}$ *or* $\frac{95}{100}$
SC1 0.95

A1

(b) $\frac{3 \times 7}{5 \times 2}$ or $\frac{21}{10}$

oe fraction eg $\frac{210}{100}$

M1

$2\frac{1}{10}$

oe mixed number eg $2\frac{10}{100}$

SC1 2.1

A1

[4]

Q12.

$162 \times \frac{5}{3}$ or $162 \div \frac{3}{5}$ or 162 × 5 or 810 or 162 ÷ 3 or 54

oe 162 ÷ 0.6

M1

270

A1

Additional Guidance

For $162 \times \frac{5}{3}$ as a decimal, allow 162 × 1.66 or better truncation or rounding or 162 × 1.67 for M1

97.2

M0A0

[2]

Q13.

Two equivalent fractions with the same denominator

eg $\frac{2}{8}$ and $\frac{1}{8}$ or $\frac{4}{16}$ and $\frac{2}{16}$

or $\frac{8}{32}$ and $\frac{4}{32}$

oe

or $\frac{1}{4} + \frac{1}{8} \left(= \frac{3}{8} \right)$

Allow 2 lists of equivalent fractions with at least 3 correct in each list

eg $\frac{1}{4} = \frac{2}{8} = \frac{3}{12} = \frac{4}{16} \ldots$

and $\frac{1}{8} = \frac{2}{16} = \frac{3}{24} = \frac{4}{32} \ldots$

M1

Correct equivalent fraction

$1\frac{1}{2}$ or $\frac{3}{16}$ or $\frac{6}{32}$

oe

or $\frac{3}{8} \div 2$

M1

$\frac{3}{16}$

A1

Alternative method

0.25 and 0.125 or

25% and 12.5%

M1

0.1875 or 18.75%

A1

$\frac{3}{16}$

A1

[3]

Q14.

$\frac{1}{3}$

B1

[1]