Mark schemes

Q1.

Divides 8 by 11, showing at least 0.7

M1

$0.\dot{7}\dot{2}$

Strand (i) Correct notation
Accept 0.7272…

Q1

[2]

Q2.

(a) 560.88

B1

(b) 45 600

B1

(c) 56 088 − 456

M1

55 632

A1

Alternative method

Traditional method of long multiplication with correct use of 0s (allow one arithmetic error) and attempt to add

or

Grid method with correct use of 0s (allow one arithmetic error) and attempt to add

or

Gelosia method (allow one arithmetic error) and attempt to add

$$\begin{array}{r} 122 \\ \times\ 456 \\ \hline 732 \\ 6100 \\ 48800 \\ \hline 55632 \end{array} \quad \text{or} \quad \begin{array}{r} 456 \\ \times\ 122 \\ \hline 912 \\ 9120 \\ 45600 \\ \hline 55632 \end{array}$$

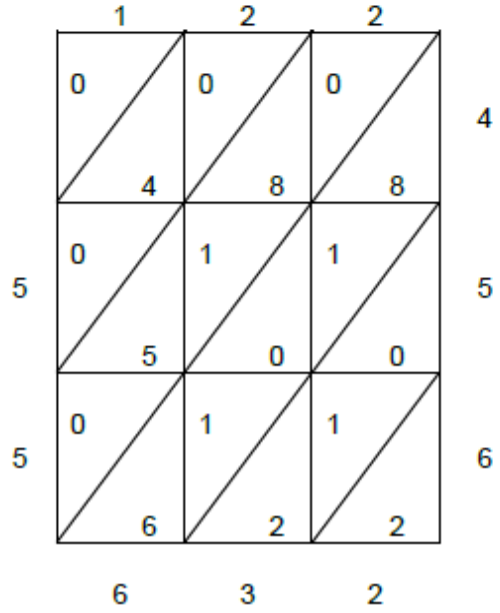
or

	100	20	2
400	40000	8000	800
50	5000	1000	100
6	600	120	12

↓

$$\begin{array}{r} 40000 \\ 8000 \\ 5000 \\ 1000 \\ 800 \\ 600 \\ 100 \\ 120 \\ +\ 12 \\ \hline 55632 \end{array}$$

or



M1

55 632

A1

[4]

Q3.

(a) 93.42

any clear indication

B1

(b) 34.6

any clear indication

B1

[2]

Q4.

(a) $0.\dot{7} \div 10 = 0.0\dot{7}$ and $\frac{7}{9} \div 10 = \frac{7}{90}$

or

$0.0\dot{7} \times 10 = 0.\dot{7}$ and $\frac{7}{90} \times 10 = \frac{7}{9}$

or

$0.\dot{7} \div 10 = 0.0\dot{7}$ and $\frac{7}{90} \times 10 = \frac{7}{9}$

or

because the decimal is divided by 10 the 9 has to be multiplied by 10

oe

B1

Additional Guidance

Algebraic methods

B0

Division of 7 by 90

B0

(b) **Alternative method 1**

$0.2 + 0.0\dot{7}$ or $\frac{2}{10} + \frac{7}{90}$

M1

$\frac{18}{90} + \frac{7}{90}$ or $\frac{25}{90}$

M1dep

$\frac{5}{18}$

A1

Alternative method 2

$10x = 2.777...$ or $100x = 27.777...$

Any letter

M1

$10x - x = 2.777... - 0.277...$

or $9x = 2.5$ or $\frac{2.5}{9}$

or $100x - x = 27.777... - 0.277...$

or $99x = 27.5$ or $\frac{27.5}{99}$

or $100x - 10x = 27.777... - 2.777...$

or $90x = 25$ or $\frac{25}{90}$

oe

M1dep

$\frac{5}{18}$

A1

[4]

Q5.

Alternative method 1

($n = 0.17272\ldots$ and)
$100n = 17.272\ldots$

oe

eg $10n = 1.7272\ldots$ and
$1000n = 172.72\ldots$

M1

($99n = 17.272\ldots - 0.17272\ldots$ or

$99n = 17.1$ or $\frac{17.1}{990}$ or $\frac{171}{990}$

or $\frac{57}{330}$

oe

eg $990n = 172.72\ldots - 1.7272\ldots$ or
$990n = 171$

M1dep

$\frac{19}{110}$

A1

Alternative method 2

$0.07272\ldots = \frac{72}{990}$

M1

$\left(\frac{1}{10} + \frac{72}{990} =\right) \frac{99}{990} + \frac{72}{990}$ or

$\frac{171}{990}$ or $\frac{57}{330}$

M1dep

$\frac{19}{110}$

A1

[3]

Q6.

3

B1

[1]

Q7.

(a) -0.3 $\frac{1}{3}$ 3.03 33.3

B1 for $\frac{1}{3}$ = 0.3(…)
or
B1 for −0.3 first and 33.3 last
or
B1 for reverse order

B2

(b) No ticked **and** partial explanation eg

No, one is positive, one negative

No, 33.3 + 0.3

oe
Implied if Q1 awarded

B1

No ticked **and** full explanation eg

No, it is 33.6

No, 33.3 + − 0.3 = 33

Strand (iii)
oe

Q1

[4]

Q8.

(a) $0.\dot{5}3846\dot{1}$

or $0.\overline{538461}$

B1

Additional Guidance
Mark final answer

(b) $\frac{37}{90}$

B1

[2]

Q9.

$4\frac{1}{2} \times 3\frac{3}{4}$ or $\frac{9}{2}$ or $\frac{15}{4}$

M1

$\frac{9}{2} \times \frac{15}{4}$ or $\frac{135}{8}$

M1dep

$16\frac{7}{8}$

oe mixed number

A1

Alternative method

4.5 × 3.75 or 15 or 1.875

M1

Full method to evaluate 4.5 x 3.75
allow one error

M1dep

16.875

condone rounding or truncation after correct answer seen

A1

[3]

Q10.

$3 \div 2\frac{1}{4}$

2.25x = 3

M1

$3 \div \frac{9}{4}$

4.5x = 6 or multiple
eg 9x = 12

M1

$3 \times \frac{4}{9}$

(x =) 12 ÷ 9

M1

$\frac{12}{9}$

oe $\frac{4}{3}$ $1\frac{1}{3}$ *1.33...*

A1

[4]

Q11.

$\frac{1}{3}$ and $\frac{5}{7}$

B1 for 2 correct and 1 incorrect
or for 1 correct and 1 incorrect
or for 1 correct

B2

[2]

Q12.

$1\frac{3}{5} \div \frac{1}{5}$

or 5 (+) 3

or $\frac{8}{5}$

oe
eg 1.6 ÷ 0.2

$\frac{1600}{200}$

$\frac{1}{5}, \frac{1}{5}, \frac{1}{5}, \frac{1}{5}, \frac{1}{5}, \frac{1}{5}, \frac{1}{5}, \frac{1}{5}$

$\frac{5}{5}$ (+) $\frac{3}{5}$

M1

8

oe

A1

[2]