M1.

Alternative method 1

(n = 0.17272… and)
100n = 17.272…

oe
eg 10n = 1.7272… and
1000n = 172.72…

M1

(99n = 17.272… – 0.17272… or

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

or $\frac{57}{330}$

oe
eg 990n = 172.72… – 1.7272… or
990n = 171

M1dep

$\frac{19}{110}$

A1

Alternative method 2

0.07272… = $\frac{72}{990}$

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]

M2.

(a) **Alternative method 1**

Method to show 4 divided by 9 with answer 0.44(…)

or method to show 1 divided by 9 = 0.11(…) and 4 × 0.11(…)

Strand (ii) full calculation or explanation seen

Q1

Alternative method 2

($x = 0.44\ldots$ or $x = 0.\dot{4}$)

$10x = 0.44\ldots$ or $10x = 0.\dot{4}$

$9x = 4$

$x = \frac{4}{9}$

Strand (ii) full calculation or explanation seen

Q1

Alternative method 3

0.44… × 10 = 4.4…

0.44… × 9 = 4.4… − 0.44…

0.44… × 9 = 4

$0.44... = \frac{4}{9}$

Strand (ii) full calculation or explanation seen

Q1

Additional Guidance
Minimum of two 4 digits seen

$10x = 4.4$

$9x = 4$

$x = \frac{4}{9}$

Q1

$x = 0.4$

$10x = 4.4$

$9x = 4$

$x = \frac{4}{9}$

Q0

(b) **Alternative method 1**

$\frac{9}{10} + \frac{4}{90}$ or $\frac{81}{90} + \frac{4}{90}$

or $0.5 + 0.\dot{4}$ or $\frac{1}{2} + \frac{4}{9}$ or $\frac{9}{18} + \frac{8}{18}$

oe

M1

$\frac{85}{90}$ or $\frac{17}{18}$

oe

A1

Alternative method 2

$10x = 9.\dot{4}$ and $100x = 94.\dot{4}$

or $100x - 10x = 94.\dot{4} - 9.\dot{4}$

or $100x - 10x = 85$

or $90x = 85$

$100x - x = 93.5$

or $99x = 93.5$

or $(x =) \frac{93.5}{99}$

M1

$\frac{85}{90}$ or $\frac{17}{18}$ or $\frac{187}{198}$ or $\frac{935}{990}$

oe

A1

Additional Guidance

$10x = 9.44$ and $100x = 94.4$ is minimum requirement to score M1

May be recovered by a fully correct answer to score M1A1

Ignore further working from correct fraction

[3]

M3.

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

or $0.\overline{538461}$

B1

Additional Guidance

Mark final answer

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

B1

[2]

M4.(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]