EXAM PAPERS PRACTICE

GCSE AQA Math 8300

Fractions Decimal & Percentages

Mark Scheme

"We will help you to achieve A Star "

M1. Packs of 6/Packs of 2

1.38 × 3

oe

4.17 ÷ 3

4.14

oe

1.39

2 pack identified

Strand (iii)

ft their values provided method mark has been awarded

Alternative Method 1 Scaling (multiples of 6)

1.38 × 6 **and** 4.17 × 2

oe

8.28 **and** 8.34

oe

2 pack identified

Strand (iii)

ft their values provided method mark has been awarded

Alternative Method 2 Price per roll

1.38 ÷ 2 **and** 4.17 ÷ 6

oe

0.69 **and** 0.695

oe

Accept 0.69 ***and*** *0.7(0)*

2 pack identified

Strand (iii)

ft their values provided method mark has been awarded

Alternative Method 3 Rolls per £

2 ÷ 1.38 **and** 6 ÷ 4.17

1.44... **and** 1.43...

2 pack identified

Strand (iii)

ft their values provided method mark has been awarded

Alternative Method 4 Comparing proportions

4.17 ÷ 1.38 and 6 ÷ 2

1.38 ÷ 4.17 and 2 ÷ 6

3.02 and 3

0.330... or 0.331 and 0.333...

2 pack identified

Strand (iii)

ft their values provided method mark has been awarded

Additional Guidance

Ignore any units throughout, e.g. 0.69p and 0.695p

Students can scale up to any multiple of 6, e.g. 12, 18, 24, etc.

Scale up to 18:

1.38 × 9 and 4.17 × 3

12.42 and 12.51

2 pack identified

Scale up to 24:
1.38 × 12 and 4.17 × 4

16.56 and 16.68

2 pack identified

Alternative method 5:
1.38 × 2 = 2.76 and 4.17 – 2.76

1.41

2 pack identified

The Q mark can be awarded if the candidate has scored M1 and has made a correct comparison from their two values

Pack of 2 identified with no correct working scores no marks

[3]

M2.(a) Subtracting two amounts with one correct

83 − 57.7

or

83 and 57.7 chosen

57.7 + 25.3 = 83

25.3

Condone 25 300 000

(b) 0.21 × their 126 200

oe

Condone any attempt to incorporate the million

Digits 26 502 imply M1

26 502

Condone 26 502 000 000

SC1 99 698

Additional Guidance

Allow the method for 21% of any value from table (or misread)

Possible answers are 17.43, 14.07, 12.117, 11 256, 11 739

Must be using correct value for full marks

Mark the **whole** method so further working will not score (except for those who misread and work out 21% off − see SC1)

(c) 36 600 000 000 ÷ 29 300 000

or

36 600 (million) ÷ 29.3 (million)

Digits 1249... or 125... imply M1

1249. ...

May be implied by 1250

1250

ft any answer correctly rounded to the nearest 10

[7]

M3.(a) Yes she's asking people who own dogs so they prefer them

oe

Yes she should ask people who don't own dogs / pets

(b) No preference = 6

Cats = Dogs × 2

Dogs + Cats + No preference = 30

8, 16, 6 scores B3

[4]

M4.

Alternative method 1

720 ÷ 20 or 7.2(0) ÷ 0.2(0) or 36

oe

their 36 ÷ 4 × 3 or 27

oe eg $\frac{3}{4} \times 36$

correct method to find $\frac{3}{4}$ *of their 36*

their 27 × 5 or 135 or their 27 × 0.05

dep on 2nd M1

oe

1.35

Alternative method 2

7.20 ÷ 4 × 3 or 5.4(0)

oe eg $\frac{3}{4} \times 7.20$

their 5.4(0) ÷ 20 or 27

their 27 × 5 or 135 or their 27 × 0.05

dep on 2nd M1

oe

1.35

Additional Guidance

£135

£ crossed out and 135p

Do not allow further work to add on or subtract from their 27 for third method mark
e.g. 36 ÷ 4 × 3 = 27 followed by 36 + 27 = 63 and 63 × 5

Allow rounding, truncation or exact decimal for their 27 in third method mark
e.g. 720 ÷ 20 = 35, 35 ÷ 4 × 3 = 26.25, 26 × 5 (= 130)

[4]

M5. (a) $\frac{392}{7} \times 2$

oe

112

SC1 504

(b) $\frac{8}{11}$ or 0.72... or 0.73

oe or 72(...)% or 73%

[3]

M6. (Billie = £)8

$\left(\frac{2}{3} =\right) 8$

their 8 ÷ 2 × 3 (= 12)

oe

their 12 ÷ 4 × 5

oe

15

[4]

M7.(a) 4 × 0.5 or 4 × 50 or 200(p) or (£)2

6 + 4 × 0.5 or 8 or (£)6 + (£)2

or (£)6 : (£)2

8 ÷ 5 (= 1.6)

Alternative method 1

Juice = $\frac{1}{5}$ **and** Lemonade = $\frac{4}{5}$

200ml of juice and 800ml of lemonade

$\frac{1}{5}$ × 6 **and** $\frac{4}{5}$ × 0.5

Allow mixture of units

1.2 + 0.4 (= 1.6) or 120 + 40 (= 160)

Allow mixture of units eg 1.2 + 40 (= 1.60)

Alternative method 2

$\frac{1}{5}$ × 6 = 1.2 or $\frac{1}{5}$ × 6(00) = 120

or

$\frac{4}{5}$ × 0.5 = 0.4 or $\frac{4}{5}$ × 0.5 or 50 = 40

oe

Must see calculation

Allow mixture of units

$\frac{1}{5}$ × 6 = 1.2 or $\frac{1}{5}$ × 6(00) = 120

and

$\frac{4}{5}$ × 0.5 = 0.4 or $\frac{4}{5}$ × 0.5 or 50 = 40

oe

Must see calculation

Allow mixture of units

1.2 + 0.4 (= 1.6) or 120 + 40 (= 160)

Allow mixture of units eg 1.2 + 40 (= 1.60)

(b) 40 seen or 2 ÷ 1.6 or 200 ÷ 160

0.4 or 1.25

25% or 20%

20% is allowed as this is defined a 'profit margin'

M8.(a) $x + y = 180$ **[5]**

oe

$y = 180 - x$

or $x = 180 - y$

or $2x + 2y = 360$

(b) $y = 1.5x$

oe

$2y = 3x$

or $y = \frac{3}{2}x$

or $x = \frac{2}{3}y$

or $\frac{x}{y} = \frac{2}{3}$

or $\frac{y}{x} = \frac{3}{2}$

[2]

M9(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

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

No, one is positive, one negative

No, 33.3 + 0.3
oe
Implied if Q1 awarded

No ticked **and** full explanation eg

No, it is 33.6

No, 33.3 + − 0.3 = 33
Strand (iii)
oe

[4]

M10.

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

or $0.\overline{538461}$

Additional Guidance
Mark final answer

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

[2]

M11.

(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

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

Alternative method 3

0.44… × 10 = 4.4…

0.44… × 9 = 4.4… − 0.44…

0.44… × 9 = 4

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

Strand (ii) full calculation or explanation seen

Additional Guidance

Minimum of two 4 digits seen

$10x = 4.4$

$9x = 4$

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

$x = 0.4$

$10x = 4.4$

$9x = 4$

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

(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

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

oe

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

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]

M12.

Alternative method 1

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

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

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

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

or $\frac{57}{330}$

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

$\frac{19}{110}$

Alternative method 2

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

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

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

$\frac{19}{110}$

[3]

M13. (a) (0).75

90(%)

$\frac{3}{10}$

oe *eg* $\frac{30}{100}$

(b) 30(%), $\frac{3}{4}$, 0.9

oe

[4]

M14. (a) (i) 25(%)

(ii) 0.3(0)

(iii) 0.2(0) $\frac{1}{4}$ 30(%)

Allow answers written as decimals or percentages

(b) (i) 12

(ii) 3

(c) 3 ÷ 8 or (1 ÷ 8) × 3

oe *or* $\left(\frac{1}{8} =\right)$ *= (0).125*

(0).375

SC1 37.5% or 37.5

100

[7]

M15.(a) 50 (%)

(b) $\frac{1}{4}$

B1 $\frac{4}{16}$ *oe*

B1 wrong fraction correctly simplified

(c) Shade the equivalent of 2 squares

[4]