



GCSE Foundation 09

Number



368 minutes



337 marks

Solving numerical problems

M1. (a) (Medium bar \Rightarrow) 20

B1

(Large bar \Rightarrow) 6

If structure incorrect (incorrect gaps/unequal widths) award B1 max

B1

(b) 24 or 10

Seen (or implied by later work)

B1

their 24 + their 10 ($= 34$)

dep on B1

M1 dep

their 34×2

oe

M2 for their $24 \times 2 + \text{their } 10 \times 2$

M1

68

SC3 digits 68 (but not answer = 68)

SC3 64

SC2 32

A1

Alternative method

24 or 10

Seen (or implied by later work)

B1

their 24×2 or their 10×2

M1

their 48 + their 20

dep on B1

M1 dep

68

SC3 digits 68 (but not answer = 68)

SC3 64

SC2 32

A1

[6]

M2. $2 \times 9.25 (= 18.5(0))$ or $2 \times 5.5(0) (= 11.(00))$

M1

$29.5(0)$

A1

$4.5(0)$

ft from their $29.5(0) - 25$

B1 ft

Complete method shown

Strand (iii)

For finding cost of 2 adult tickets

+ 2 child tickets and subtracting 25

Q1

[4]

M3. 3×27 or $81(p)$ or $(£)0.81$

M1

their $(£)0.81 + 5.99 + 1.80 (= 8.6(0))$

Allow mixed units

eg $81(p) + (£)5.99 + (£)1.80$

M1

$10 - \text{their } 8.6(0)$

M1

1.40

Strand (i)

Correct notation

Do not accept 1.4

Q1

[4]

M4. eg $4 \times \frac{1}{4}(i) = 1(i)$
 oe $20 \div 4$ or 5 or $\frac{1}{5}$

M1

4×4 or 16

oe *their* $5 \times \frac{1}{4}$

M1

No and 16

oe eg No and $1\frac{1}{4}$

A1

[3]

M5. (a) $44 + 38 + 48 + 55 + 60 (= 245)$
Allow one error or omission

M1

their total $\div 5$

Condone $44 + 38 + 48 + 55 + 60 \div 5$

M1

49

SC2 197

A1

(b) $41 \times 40 (= 1640)$ or $41 \times 0.4(0) (= 16.4(0))$
 oe

M1

$60 - 41(= 19)$ **and**
 their $19 \times 10 (= 190)$ or
 their $19 \times 0.1 (= 1.9(0))$
 oe

M1

their $16.40 -$ their 1.90 or
 their $1640 -$ their 190
dependent on M2

M1 dep

14.50

Strand (i)
Do not accept 14.5
SC2 19.90 *SC1* 19.9 or 1990
SC2 22.10 *SC1* 22.1 or 2210

Q1

[7]

M6. 6×85 or 510 or 6×0.85 or 5.1(0)
 States that saving is equal to two tins.
 Seen or implied.

B1

4×85 or 340 or 4×0.85 or 3.4(0)
 2×85 or 170 or 2×0.85 or
 1.7 if it is their final calculation.

B1

1.70

Strand (i)
Do not accept 1.7

Q1

[3]

M7. $\frac{15}{100}$ or 0.15 seen
 oe eg (10% =) 300 or (5% =) 150 or (1% =) 30

M1

$\frac{15}{100} \times 3000$

oe 300 + 150

M1dep

450

A1

Yes

Strand (iii) Correct conclusion from their answer.
Must have scored 1st M1.

Q1ft

[4]

M8.	$60 \times 2.5 (= 150)$	M1
	$25 \times 5 (+) 20 \times 4$ or 205	M1
	their $150 + 100 -$ their 205 oe	M1
	45	A1
	their $45 \div 15$ <i>Dependent on 3rd M1</i>	M1dep
	3	A1 ft
	Alternative method	
	$5 - 2.5$ and $4 - 2.5$ or 2.5 and 1.5	M1
	$25 \times$ their $2.5 (+) 20 \times$ their 1.5 , or 92.5	M1
	$100 -$ their 92.5 oe	M1
	7.5	A1
	Their $7.5 \div 15$ or $0.5 (+ 2.5)$ <i>Dependent on 3rd M1</i>	M1dep
	3	A1ft

[6]

M9.	(a) 2.4×3.8	M1
	9.12 or 9.1	A1

- (b) $10 \times 14 (= 140)$ or $14 \div 12.5 (= 1.12)$
1.5 left over per load or $10 \times 12.5 (=125)$ oe

M1

their $140 \div 12.5$ or their 1.12×10 or 11.2
11.2 implies M2
15 tonnes left over (140 implied)
or $10 + 1$
or $11 \times 12.5 = 137.5$ and 140 seen
(2.5 tonnes left over)

M1 dep

11

ft only if 2nd method mark not awarded
SC1 for rounding down if no method marks have been awarded

A1 ft

[5]

M10. (a) $120 \div 8$

M1

15

A1

- (b) $8 + 12$ or 20 seen
Any one pair from
16, 24, (40)
24, 36 (60)
32, 48, (80)
40, 60 (100)

M1

$120 \div$ their 20
48, 72 (120)

M1

6

A1

- (c) 6000 (g) seen
1000 grams = 1 kg seen or implied 0.12(0) seen

B1

their $6000 \div 120$
 $6 \div$ their 0.12(0)
 $6 \div 120 \times 1000$ scores B1 M1

M1

50

SC1 for answer digit 5, eg 5 or 500 if no working shown

A1 ft

- (d) $120 \div 1.99$ **and** $100 \div 1.59$ oe
 $1.99 \div 120$ **and** $1.59 \div 100$ oe
Must be a consistent pair

M1

60.(3...) **and** 62.(8...)
 $0.016...$ **and** $0.015...$

A1

Choose 100 (grams)

Use of a consistent pair and correct choice for their answer
Unsupported 100 chosen scores MOA0Q0
Strand (iii)
dep on M1 scored only

Q1 ft

Alternative method

5×1.99 **and** 6×1.59
Comparing cost of 600 g

M1

9.95 **and** 9.54

A1

Choose 100 (grams)

Use of a consistent common multiple or factor of 100 and 120 and correct choice for their answer
Unsupported 100 chosen scores MOA0Q0
Strand (iii)
dep on M1 scored only

Q1 ft

[11]

- M11.** 11p, 22p, 55p, £1.10 or 110p
B2 two or three correct totals
B2 four correct pairs
B1 one correct total
B1 one, two or three correct pairs
Condone money notation errors for up to B2

B3

[3]

M12. (B =) 32

B1

(C =) their $32 \div 2$ or 16 seen

M1

(D =) their $32 - 11$ or 21 seen

M1

(E =) 11

*100 – (20 + their B + their C + their D)
ft dependent on both Ms*

A1 ft

[4]

M13. $(5 + 1) \times 4$

M1

24

SC1 for 18 or 20 or 21 on answer line

A1

[2]

M14. A = 36 B = 12 C = 72

B2 for 2 conditions met eg A = 45 B = 15 C = 90

B1 for 1 condition met eg A = 30 B = 40 C = 50

SC2 for correct numbers in wrong order

B3

[3]

M15. 10

B1 92(p) or 82(p) or 72(p) or 20(p) seen

SC1 5p, 5p or 2 x 5p

B2

[2]

M16. 5 + 9 or 14 or 10 + 18

M1

28

A1

[2]

M17. 3 6 9 12 18
 8 or 20 or 12 or 4 or 8
 20 5 10 15 5

B2 total 31 with 2 correct multiples

B1 total 31 with 1 correct multiple or three correct multiples but total not 31

or listing multiples of 3, 4 and 5 (minimum of two multiples of each number)

B3

[3]

M18. $40 \div 8$ or $5 \times 8 (= 40)$

oe eg 8, 16, 24, 32 ... seen

M1

5

A1

[2]

M19. Sight of 12p or 24p or 36p or (£)1.2(0) or (£)3.6(0)

eg 0.12 or 0.24 or 0.36

M1

$7200 \div \text{their } 36 (= 200)$ or $72 \div \text{their } 3.60$

oe

M1 dep

20

SC2 60

A1

All calculations and working clearly shown

Strand (iii)

Must have both Ms awarded

Q1

[4]

M20. 5647 – 5345 or 302

M1

200 × 24 or 4800 or 48(.00)

M1

their (302 – 200) × 15 or 1530 or 15.3(0)
oe

M1

6330 or 63.3(0)

A1

their 63.30

Strand (i)

Correct money notation in £

Do not accept 63.3

Q1

[5]

M21. 51 = 3 × 17

oe *Multiplications **must** be shown
any order*

B1

55 = 5 × 11

B1

58 = 2 × 29

B1

[3]

M22. 2 × 1.7(0) or 3.4(0) or 3 × 2.25 or 6.75
or 2 × 170 or 340 or 3 × 225 or 675 oe

M1

their 3.40 + their 6.75
oe

Award M2 for 2 × 170 + 3 × 225 or 170 + 170 + 225 + 225 + 225

M1 dep

(£)10.15 or 1015(p)

A1

Correct conclusion from their working with all calculations shown

Strand (iii)

Both Ms awarded and working seen

Q1

[4]

M23. Total between 1.2(0) and 1.8(0) inclusive

M1

their total $\div 2$

M1

1 correct set of coins for their 75p

A1 ft

Correct sets of coins 50, 20, 5 and 20, 20, 10, 10, 10, 5
or 50, 10, 10, 5 and 20, 20, 20, 10, 5

A1

[4]

M24. 40 15 5
or 20 30 10

B1 $A + B + C = 60$ (must be different)

B1 A is a multiple of 10

B1 $B = 3C$

eg B2 for 20 10 30

B2 for 0 45 15

B2 for 30 22.5 7.5

B2 for 90 -30 -10

B3

[3]

M25. 200 - 20 or 180

M1

their 180 $\div 6$

M1 dep

30

A1

[3]

M26. (a) $\frac{1}{4} \times 200$ or $200 \div 4$

M1

50

A1

(b)	$320 \div \text{their } 50$	<i>M1 for sight of 6</i>	<i>Allow complete build up method</i>		
				M1	
	7				
				A1	[4]
M27.	6				
		<i>B1 for twice as many 20s as 10s or coins total £1.50</i>		B2	
					[2]
M28.	$150 - 100$ or 50 or $285 - 200$ or 85			M1	
	their 50×12 or 600 or 6				
				M1	
	their 85×10 or 850 or $8.5(0)$				
				M1	
	their $6 + \text{their } 8.5(0) + 15$				
		<i>oe Allow mixed units</i>			
				M1	
	29.50				
		<i>Strand (i)</i> <i>Correct notation</i> <i>Do not accept 29.5</i> <i>SC4 14.50</i> <i>SC3 14.5</i>			
				Q1	[5]
M29.	$325 + 165 (= 490)$				
		<i>or $325 - 165 (= 160)$</i>			
				M1	
	their $490 \div 2 (= 245)$				
		<i>or their $160 \div 2$</i>			
				M1 dep	
	80				
				A1	

Alternative method

Correct trial to make difference smaller eg 300 and 190

M1

Improved correct trial eg 225 and 265

M1

80

A1

[3]

M30. $60 \times 3 \div 2$ or 90 seen

oe

M1

their $90 \times 3 \div 2$

oe

M1 dep

135

A1

[3]

M31. $2x + 2x + 18x$

or $x + x + 9x (= 132)$

oe or for 1st trial

eg $2 \times 8 + 18 \times 4 = 88$

M1

$22x = 132$ or $11x = 132$

oe or for 2nd improved trial

eg $2 \times 10 + 18 \times 5 = 110$

M1

6

A1

Alternative method

$2 + 9$ or $4 + 18$

M1

$132 \div$ their 11 or $132 +$ their 22

M1 dep

6

A1

[3]

M32. (£) 1.20 or (£) 1 seen
oe

M1

10 – their 1.20 – their 1

M1

7.80

Strand (i)
Correct notation required
Do not accept 7.8

Q1

[3]

M33. (a) 11

B1

(b) 15

B1

(c) $(2c = 11 + 3 = 14)$
Their $14 \div 2$

M1

7

A1

[4]

M34. Finds the cost of two or more portions of different fruit
eg, apple + banana = 30 + 25 (= 55 p)

M1

Finds the cost of two or more portions of different vegetables
eg, carrots + broccoli = 20 (or 40) + 75 (= 95 p or £1.15 (oe))

M1

Finds the cost for one day (five portions) or more
eg, 2 apples + 3 bananas = $2 \times 30 + 3 \times 25$ (= 1.35)

M1

A full attempt which misses one criterion

eg, not using 2 different fruit and vegetables
or not keeping under £10
or otherwise correct work on a five day week

M1 dep

35 items with at least 2 different fruit and vegetables and total cost less than or equal to £10

Strand (iii)

Must see an organised response with all criteria met

Q1

[5]

M35. Finds the cost of two or more portions of different fruit

eg, apple + banana = 30 + 25 (= 55 p)

M1

Finds the cost of two or more portions of different vegetables

eg, carrots + broccoli = 20 (or 40) + 75 (= 95 p or £1.15 (oe))

M1

Finds the cost for one day (five portions) or more

eg, 2 apples + 3 bananas = 2 × 30 + 3 × 25 (= 1.35)

M1

A full attempt which misses one criterion

eg, not using 2 different fruit and vegetables
or not keeping under £10
or otherwise correct work on a five day week

M1 dep

35 items with at least 2 different fruit and vegetables and total cost less than or equal to £10

Strand (iii)

Must see an organised response with all criteria met

Q1

[5]

