



GCSE Foundation 25

Handling Data



132 minutes



128 marks

Probability

M1. (a) $\frac{1}{15}$ oe [0.06, 0.07] or [6%, 7%] **B1**

(b) $\frac{2}{15}$ oe [0.13, 0.14] or [13%, 14%] **B1**

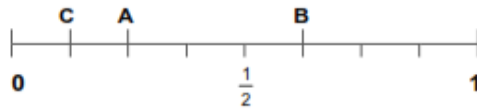
(c) $\frac{13}{15}$ oe ft 1 – their $\frac{2}{15}$ [0.86, 0.87]
or [86%, 87%] **B1 ft** **[3]**

M2. (a) 5 **B1**

(b) 3
*B1 one correct trial seen
(increasing red and decreasing yellow by same number)
or
B1 10 red or 9 yellow seen or
B1 $(12 \pm 7) \div 2$ or 2.5 or 9.5* **B2** **[3]**

M3. (a) Impossible
Unlikely
*B1 one correct in correct position
SC1 0 and $\frac{1}{6}$* **B2**

(b)



Accept clear indication of

C at $\frac{1}{8}$, A at $\frac{2}{8}$ and B at $\frac{5}{8}$

B2 any two correct

B1 any one correct

B3

[5]

M4. 0.8

oe

B1 0.2 oe

B1 4 out of 5 oe

B1 ratio 4:1 oe seen

Condone ratio 1:4 oe seen if clearly shown as not oversleep :
oversleep

B2

[2]

M5. (a) (i) White or W

B1

(ii) $\frac{1}{4}$ or (0).25 or 25%

B1 sight of $\frac{1}{8}$ or $\frac{25}{100}$

B1 1 out of 4 or 1 in 4

B2

(b) All labelled red or R

B1

(c) 1 white, 1 green, 4 red, 4 blue

B1 all four colours used and 2 of other 3 criteria met
eg 2W 2G 3R 3B

B2

[6]

M6. (a) (MS) ML, MK, DS, DL, DK, WS, WL, WK

B2 at least five more of the eight possible options seen

B1 2 - 4 more of the eight possible options seen

B3

(b) their $\frac{1}{9}$ oe

B1 ft

[4]

M7. (a) **B** marked at three parts

0 - - B 1

B1

C marked at 0

B1

(b) 60(°) or $\frac{1}{6}$ seen

± 2 or 60 walk or 50 cycle or 90 bus

B1

$\frac{360}{\text{their } 60} \times 40$

oe their 6×40 or $5 \times 40 + 40$

M1

240

Accept integer answer in range [232, 249]

SC2 Non-integer in range [232, 249]

A1 ft

(c) $\frac{90}{360} (\times 252)$ or $\frac{1}{4} (\times 252)$

oe

M1

63

A1

Alternative method

$40 \times \frac{90}{\text{their } 60} + \frac{252 - \text{their } 240}{4}$

M1

63

A1

[7]

M8. $1 - \frac{1}{4} \left(= \frac{3}{4} \right)$
 $24 \div 3 (= 8) \text{ or } 1 : 3$ **B1**
 $24 \div 3 \times 4$
oe their 8 + 24 or (1 x) 8 + 3 x 8 or 4 x 8 **M1**
 32
SC2 $\frac{8}{32} \text{ or } \frac{24}{32}$ **A1** **[3]**

M9. (a) Never true **B1**
 Never true **B1**
 Always true **B1**
Ticks or any clear indication
 (b) 0.3 or 30(%) **B2**
 33(%) or 0.33
 $\frac{1}{3}$ or 0.3 or 0.333(...) or $33\frac{1}{3}$ (%) or 33.3(...)(%)
B1 one value in correct position **[5]**

M10. One correct pair
oe **B1**
 HH HT TH TT
Strand (ii)
oe
SC1 all four possible single toss outcomes
(10p H, 10p T, 2p H, 2p T) **Q1** **[2]**

M11. (a) 10, 18, 4, 8
B1 two or three correct

B2

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

B1 ft $\frac{10}{40}$ oe

ft from their sun frequency

B1 correct cancelling to simplest form of their unsimplified

fraction, $\frac{n}{40}$

SC1 0.25 or 25%

B2 ft

(c) (i) Sunny = 16 and Snow = 0
 16, 20, 0, 4
SC2 Tallies worth B3
SC1 Tallies worth B2

B1

Rain = 20

B1

Fog = 40 – their 20 – their 16
 – their 0

B1 ft

(ii) Impossible
oe Word(s) eg no chance, never

B1 ft

Evens

oe Word(s) eg even, even chance

*SC1 2 correct numerical probabilities
 for both marks ft from table*

B1 ft

[9]

M12. (a) $\frac{8}{16}$

oe

B1 $\frac{n}{16}$ where $1 \leq n \leq 15$ and n an integer

B1 $\frac{8}{n}$ where $n > 8$ and n an integer

SC1 evens, even chance, even, 8 out of 16, 8 in 16

B2

- (b) Any two multiples of 3
 3, 6, 9, 12, ... (not 0)
B1 one multiple of 3
SC1 two or more correct lists of counters with no totals
SC1 two different fractions both equivalent to $\frac{1}{3}$.

B2

- (c) Any two multiples of 4 greater than 10
 12, 16, 20, 24, ...
B1 one multiple of 4 greater than 10
SC1 4 and 8
SC1 two or more correct lists of counters with no totals

B2

[6]

M13. $\frac{20}{5} \times 1.5 (= 6)$

or $20 \times 0.5 (= 10)$

or $20 \times 50 (= 1000)$

M1

their 6 – their 10

or their 10 – their 6

M1 dep

4

SC2 £2 (from $16 \times 50p - 4 \times £1.50$)

A1

[3]

- M14.** (a) SS, SG, GS, GG
B1 for 2 or 3 correct (ignore repetitions)

B2

- (b) Numerator of 2

B1

Denominator of 6

B1

Must have a fraction

[4]

M15. (a) $\frac{6}{6+69+25}$

$\frac{6}{100}$ **M1**

$\frac{3}{50}$ **A1**

(b) 31 **B1**

(c) (i) Unlikely **B1**

(ii) Certain **B1**

[5]

M16. (a) (3), (5), (7), 9, 11
 (5), 7, 9, 11, 13
 7, 9, 11, 13, 15
 9, 11, 13, 15, 17
 -1 eeo0 **B2**

(b) $\frac{3}{20}$
 oe **B1**

(c) $P(13) = \frac{3}{20}$ implies 15 winners in 100 plays **B1**

(Chocolate costs) £7.50 **B1**

(Takings) 100×20 (= £20) **B1**

(Profit) £20 – £7.50 (= £12.50) **B1**

Award partial marks for stages shown

[7]

M17. (a) All entries are correct

+	2	4	6	8	10
2	4	6	8	10	12
4	6	8	10	12	14
6	8	10	12	14	16
8	10	12	14	16	18
10	12	14	16	18	20

B1

(b) $\frac{\text{Their } 3}{25}$

B1 Denominator of 25, fraction of value less than 1

SC1 $\frac{3}{35}$

B2ft

(c) There are 4 outcomes that are square numbers but only 3 that are cube numbers and chooses square

oe eg, convincingly lists appropriate outcomes or annotates table

B1 Part of the B2 explanation but one missing or incorrect value or values correct but does not choose

B0 There are 2 square numbers but only 1 cube number

B2ft

[5]

M18. (a) B

B1

(b) D

B1

(c) Arrow drawn to half way point

B1

[3]

- M19.** (a) $\frac{2}{8}$ and $\frac{6}{24}$
B1 One correct (and one incorrect)
B1 Two correct and one incorrect
Accept any indication

B2

- (b) 25

B1

- (c) Likely

Accept any indication

B1

- (d) Attempts a quarter circle

Be generous if intention clear

B1

[5]

- M20.** (a) The two dice show the same number.
oe eg, 1 – 1 = 0

B1

- (b) All entries correct

Difference	1	2	3	4	5	6
1	0	1	2	3	4	5
2	1	0	1	2	3	4
3	2	1	0	1	2	3
4	3	2	1	0	1	2
5	4	3	2	1	0	1
6	5	4	3	2	1	0

B1 One or two errors
Condone any negatives

B2

- (c) (i) $\frac{\text{Their } 10}{36}$
 oe Allow inclusion or exclusion of positive and negative counted together

B1ft

- (ii) 5

B1

[5]

- M21.** (a) Order the numbers
 Allow 1 number missing or repeated

M1

6

A1

- (b) (i) $\frac{3}{9}$
 oe 0.33 or better

B1

- (ii) CAB

B1 For sight of two correct probabilities correctly assigned

$$A = \frac{3}{9} \quad B = \frac{4}{9} \quad C = \frac{2}{9}$$

(Accept 3, 4, 2 for B1)

B2

[5]

- M22.** (a) 0, 0, 0, 0, 1, 2, 0, 2, 4
 7 or 8 correct B1

B2

- (b) 5 out of 9 for score of 0
 oe ft from their table

B1 ft

[3]

- M23.** (a) $\frac{1}{4}$ *oe Fraction* **B1**
- (b) 50(%) **B1**
- (c) Unlikely circled *oe Unambiguous indication* **B1**
- [3]**

- M24.** (a) 3 correct bar heights
B1 One or two correct
Tolerance $\pm \frac{1}{2}$ small square **B2**
- Bars equal width with gaps **B1**
- (b) $\frac{40}{60}$ *oe* **M1**
- $\frac{2}{3}$ **A1**
- (c) $10 + 2 = 12$ (miss goal or hit post) **B1**
- Method to find 20% of 60
 $\frac{12}{60} \times 100$ **M1**
- = 12 so Andy is correct
 = 20 so Andy is correct **A1**
- [8]**

M25. (a) 12 in table

B1

(b) (i) $\frac{5}{36}$
oe probability

B1ft

(ii) $\frac{6}{36}$
oe probability

B1

(iii) Identifies (1,) 4 and 9 as squares
ft Their 12 if square

M1

$\frac{7}{36}$
oe probability

A1ft

[5]

M26. (a) Arranging in order
25, 26, 28, 30, 35, 39

M1

29

A1

(b) Attempt to add all 6 (= 183)

M1

Their $183 \div 6$

*If no total shown brackets must be round their added numbers
ie $(28 + \dots + 26) \div 6$*

DM1

30.5

A1

(c) $\frac{2}{5}$
oe; numerator, B1; denominator, B1 (fraction ≤ 1)

B2

[7]

M27. (a)

		Dice						
		1	2	3	4	5	6	
Coin	Heads	2	3	4	5	6	76	B1
	Tails	−1	0	1	2	3	4	B1

(b) (i) $\frac{1}{12}$
ft from a completed table or correct

ft may be cancelled eg $(\frac{6}{12}) = \frac{1}{2}$

B1 ft

(ii) $\frac{5}{12}$
ft from a completed table or correct

ft may be cancelled eg $(\frac{6}{12}) = \frac{1}{2}$

Allow B1 for numerator 5 of any fraction < 1

B2 ft

[5]

