



GCSE Foundation/Higher 24

Handling Data



Mark scheme



35 minutes



30 marks

Probability

M1. (a) $1 - (0.41 + 0.24 + 0.22 + 0.04)$

$1 - 0.91$ oe

Allow $100 - 91$

M1

0.09

Accept 9% or $\frac{9}{100}$

A1

(b) $0.41 \times 8000 (= 3280)$

$(1 - 0.41) \times 8000 (= 4720)$ oe

M1

$15\ 000 - \text{their } 3280$

$\text{their } 4720 + (15\ 000 - 8000)$

M1 dep

11 720

11 720

SC2 13 080 or 13 240 or 14 280 or 14 680

A1

[5]

M2. $P(4 \text{ with one dice}) = \frac{1}{6}$

B1

List of combinations that give a score of 4 for 2 dice

[(1, 3), (2, 2), (3, 1)]

or a sample space diagram

SC Allow M1 for (2, 2) and only one of (1, 3) or (3, 1)

SC Allow M1 for repeat of (2, 2) and (1, 3) and (3, 1)

M1

$P(4 \text{ with two dice}) = \frac{3}{36}$ or $\frac{1}{12}$

A1

1 dice ticked and $\frac{1}{6} > \frac{1}{12}$

ft If SC given above and 1 dice ticked and $\frac{1}{6} > \frac{1}{18}$ stated

ft If SC given above and 1 dice ticked and $\frac{1}{6} > \frac{1}{9}$ stated

A1 ft

[4]

M3. $1 - (0.8 + 0.06)$

M1

0.14

A1

[2]

M4. Robert's results
or all results

B1

Largest number of trials

B1

$$\left(\frac{22}{200} \text{ or } \frac{76}{200} \text{ or } \frac{102}{200} \right) \times 10$$

$$\text{or } \left(\frac{25}{250} \text{ or } \frac{98}{250} \text{ or } \frac{127}{250} \right) \times 10$$

allow rounded values
or black = 1 or white = 4 or green = 5
or $\frac{1}{10}$ and $\frac{4}{10}$ and $\frac{5}{10}$

M1

black = 1, white = 4, green = 5

A1

[4]

M5. (a) (i) $153/300$ or $51/100$ or 0.51 or 51%

B1

(ii) Fair and full comparison (between predicted and actual)
e.g. any two of
 $3/6$ of 300 (=150) is close to 153
 $2/6$ of 300 (=100) is close to 98
 $1/6$ of 300 (=50) is close to 49
B1 Fair and incomplete comparison
e.g. comparison for red only
Must be a numerical comparison
Answer must be 'yes'

B2

(b) Not enough trials or
accept reason based on 'chance'

B1

[4]

- M6.** (a) 23/40 B1 for each
Must be a probability
0.575 oe or 57.5% gets B2 23% gets B1
B2
- (b) 16/(their denominator in a)
0.4 oe or 40%
B1 ft
- (c) Centre A harder as $0.4 < 0.7$
ft if their (b) < 0.7
or cannot tell as results are only for one day oe
or more have failed at A than have passed oe
B1 ft
- [4]

- M7.** (a) D: probability > 1
Accept "top number can't be bigger than bottom number"
or "improper fraction"
B1
- (b) A: 13 soft and 28 sweets
Need to see that they understand that there are 28
chocolates in total
B1
- (c) D: Probability still $\frac{1}{2}$
Accept "coin only has two sides"
or equiv
B1
- [3]

M8. Note: Probability - Accept fraction, decimal or percentage. Do not accept ratio.

eg 1 out of 3 or 1 in 3 penalise once on whole paper.

- (a) 0.2, 0.35, 0.15, 0.3
or $\frac{4}{20}$, $\frac{7}{20}$, $\frac{3}{20}$, $\frac{6}{20}$
2 or 3 correct B1
All 4 correct fractions in working with 4, 7, 3, 6 in table B1B0
B2

- (b) $100 \times (\text{their } 0.35)$
Must be prob or (5×7)

$$\frac{35}{100} \text{ M1A0}$$

M1

$$= 35$$

0.35 alone scores 0

A1 ft

[4]

