

M1.

(a) Box A $\rightarrow p(3) = \frac{1}{6}$ and

Box B $\rightarrow p(3) = \frac{1}{3}$ and

Box C $\rightarrow p(3) = \frac{2}{5}$ and

Box D $\rightarrow p(3) = \frac{2}{4}$ or $\frac{1}{2}$

Allow one incorrect probability

M1

(Box) D and all probabilities correct

A1

(b) (Box) A and (Box) B

B1

[3]

M2.(a)

			9
		9	10
	9	10	11
9	10	11	12

B1

(b) 7

ft a completed table

B1ft

(c) Denominator of 36

or

Numerator of 5 (or their 5)
36 choices identified

M1

$\frac{5}{36}$ or 0.138(...) or 0.139

or 13.8(...) % or 13.9%
*correct or ft their 8s from a **complete** table*

A1ft

[4]

M3.

(a) Usually get a different outcome

B1

(b) More trials

B1

[2]

M4.

(a) (i) B

B1

(ii) C

B1

(iii) D

B1

(iv) A

B1

(b) 3×5 or 1×2 or 6×1 or 15

Attempt at fx

M1

$(3 \times 5) + (1 \times 2) + (6 \times 1)$

Attempt at total frequency

M1

23 and Ben

A1

[7]

M5.(a) $0.1 \times 400 (=40)$ or $0.2 \times 500 (=100)$

M1

40 and 100

A1

140 or 140/900 but not 140 : 900

*SC2 for 760**SC1 for digits 14...**ft on their 40 + their 100 if complete correct method seen.*

A1ft

(b) $\frac{4}{10}$ and $\frac{3}{9}$ identified as probabilities

May be on branches of a tree diagram.

M1

$$\left(\frac{4}{10} \times \frac{3}{9}\right) = \frac{12}{90} = \frac{2}{15}$$

*Evidence of cancelling is necessary**but $\frac{12}{90} = \frac{2}{15}$ is enough.*

NB $\frac{2}{5} \times \frac{1}{3}$ is 2 marks

A1
[5]

M6. $120 \div 6$ or $\frac{1}{6}$ seen oe

M1

20

SC1 for 100

A1
[2]

M7.

(a) $1 - 0.2 - 0.15 - 0.3$
 $1 - 0.65$

M1

0.35

oe

A1

(b) 200×0.15 or $\frac{30}{200}$

M1

30

SC1 170

A1

Alternative

$200 - (200 \times 0.2 + 200 \times 0.3 + 200 \times \text{their } 0.35)$

M1

30

SC1 170

A1
[4]

M8.

(a) Cannot say and reason

eg, don't know how many boys and girls there are

B1

(b) $\frac{7}{30}$

B1

[2]

M9.(a) 0.05

B1

(b) 150×0.92

M1

138

SC1 for 12

A1

[3]

M10.

(a) LPM

PLM

PML Any order

MLP

MPL

B1 for at least two more correct orders

B2

(b) $\frac{2}{6}$

oe $\frac{1}{3}$

ft their (a) if at least one extra order given

B1ft

[3]

M11. $\left(\frac{1}{2}\right)^5 \div (7.15 \times 10^{-8})$ oe

Condone bracket error in (7.15×10^{-8})

or

$\frac{1}{32}$ oe seen

Condone use of $\frac{2}{5}$ for $\frac{1}{2}$ or $\frac{32}{3125}$
oe seen

M1

= 437062.(...)

May be implied

A1

4.4×10^5

Strand (i) Correct notation required
ft any decimal (at least 3 sf) rounded to 2 sf and written in
correct standard form

4.37 ... $\times 10^5$ scores M1A1Q0

440 000 scores M1A1Q0

Q1ft

[3]

M12.(a) $200 \div 5$ or $\frac{1}{5}$ seen
oe

M1

40

A1

(b) Valid statement

e.g.

*Not (approximately) equal amounts on each number**Should all be (around) 40**3 is (more than) double 4**Only 2 is near expected value**Biased towards 3*

M1

No or Cannot tell

May be implied by comment

A1

[4]

M13.Up to 30 minutes late on both days seen or implied

or

30 minutes to 1 hour late on one day and on time on the other day seen or implied

*Lists all nine possibilities but does not select from them**(probabilities or words)**May be on a tree diagram*

M1

Up to 30 minutes late on both days seen or implied

and

30 minutes to 1 hour late on one day and on time on the other day seen or implied

*Must be selected (2 or 3)**Need not state both ways*

M1dep

$$0.3 \times 0.3 (= 0.09)$$

or

$$0.6 \times 0.1 (\times 2) (= 0.06 \text{ or } 0.12)$$

*Must be selected if on a tree diagram
(2 or 3)*

M1

$$0.3 \times 0.3 (= 0.09)$$

+

$$0.6 \times 0.1 (\times 2) (= 0.06 \text{ or } 0.12)$$

Dep on 3rd M1

M1dep

$$0.21$$

A1

[5]

M14. (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]

M15. (a) $\frac{392}{7} \times 2$
oe

M1

112

SC1 504

A1

(b) $\frac{8}{11}$ or 0.72... or 0.73
oe or 72(...) % or 73%

B1

[3]