

Simple Probability and Estimation

Mark Schemer 1

Level	IGCSE
Subject	Maths
Exam Board	Edexcel
Topic	Handling Data Statistics
Sub Topic	Simple Probability and estimation(Probability)
Booklet	Mark Scheme 1

Time Allowed: 56 minutes

Score: /46

Percentage: /100

Grade Boundaries:

A*	A	B	C	D	E	U
>85%	75%	70%	60%	55%	50%	<50%

Question Number	Working	Answer	Mark	Notes
1. (a)	$1 - (0.6 + 0.3)$		2	M1
		0.1		A1 Also accept $\frac{1}{10}$ or 10%
(b)	30×0.6		2	M1
		18		A1 cao Do not accept $\frac{18}{30}$
Total 4 marks				

2. (a)	$120 - 90 (=30)$		2	M1 or $1 - 90/120$ A1
		30/120 oe		
(b)	"30/120" X 200 oe		2	M1 ft or $200 - "90/120" \times 200$ (i.e. $200 - "heads"/120 \times 200$) A1 ft ft if final ans < 200
		50		
Total 4 marks				

3.	$2/5 \times 30$		2	M1 A1 12 out of 30 = M1A1 12/30 = M1A0
		12		
Total 2 marks				

4. (a)			1	B1 Must be a fraction or 0.016 rec x
(b)	$2("x/60") = (x+20)/80$ $16(0)x = 6(0)(x + 20)$ or $80x = 30(x + 20)$ or $2x/3 = (x + 20)/4$		3	M2 (must be an equation) M1 for either $2("x/60")$ or $(x+20)/80$ A1 dep Correct removal of denominators. Correct removal of denominators. Simplifying denominators.
(ii)	$8x = 3x + 60$ or $5x = 60$ or $60 \div 5$		2	M1 A1 Dependent on M1. Can be marked if seen in b(i)
		12		
Total 6 marks				

Q	Working	Answer	Mark	Notes
5. (a)	$1 - (0.18 + 0.2 + 0.23 + 0.22)$	0.17	2	M1 A1 $1 - 0.83$
5. (b)	40×0.2	8	2	M1 A1 8 out of 40 = M1A1 8/40 = M1A0
				Total 4 marks

6.	$0.2 + 0.7$	0.9 oe	2	M1 A1 oe inc $\frac{9}{10}$, 90%
				Total 2 marks

7. (a)	0.3×0.1 or $(1 - 0.7) \times 0.1$ and no other terms	0.03 oe	2	M1 A1
(b)	0.7×0.8 or $0.7 \times (1 - 0.2)$ or 0.3×0.9 or $(1 - 0.7) \times (1 - 0.1)$		3	M1 M1 for "(a)" + 0.7×0.2 or $0.3 \times 0.1 + 0.7 \times 0.2 (=0.17)$ or $(1 - 0.7) \times 0.1 + 0.7 \times 0.2$
	$0.7 \times 0.8 + 0.3 \times 0.9$ or $0.7 \times (1 - 0.2) + (1 - 0.7) \times (1 - 0.1)$	0.83 oe		M1 M1 for $1 - ("(a)" + 0.7 \times 0.2)$ or $1 - "0.17"$ (M2 for $1 - "(a)" - 0.7 \times 0.2$)
				A1
				Total 5 marks

7.	<p>No approximation</p> $\frac{37527}{365} \text{ or } \frac{37527}{366} \text{ or } \frac{37527}{365.25} \text{ or } \frac{37527}{364}$			M2	<p>M1 for $\frac{37527}{x}$ where $356 \leq x \leq 370$</p>
		103		A2	<p>Accept 102 if M2 awarded A1 for $102.5 \leq \text{answer} \leq 103.1$</p>

7.	<p>Alternative - with approximation</p> $\frac{x}{y} \text{ or } x \times \frac{1}{y}$ <p>where x is $35\,000 \leq x \leq 40\,000$</p> <p>AND</p> $336 \leq y \leq 400$		4	M2	<p>M1 for $\frac{x}{y}$ or $x \times \frac{1}{y}$ where either the value of x or the value of y is acceptable</p>
		integer in the range 93 – 111 inclusive		A2	<p>The award of any accuracy marks is dependent on the award of M2</p> <p>A1 for non-integer in the range 93 – 111</p>
				Total 4 marks	

8	(a)	0.3×0.1 or $(1 - 0.7) \times 0.1$ and no other terms		2	M1
			0.03 oe		A1
	(b)	0.7×0.8 or $0.7 \times (1 - 0.2)$ or 0.3×0.9 or $(1 - 0.7) \times (1 - 0.1)$		3	M1
		$0.7 \times 0.8 + 0.3 \times 0.9$ or $0.7 \times (1 - 0.2) + (1 - 0.7) \times (1 - 0.1)$			M1
			0.83 oe		A1
Total 5 marks					

Question	Working	Answer	Mark	Notes
9. (a)	$1 - (0.3 + 0.35 + 0.15)$			M1 for a complete method
		0.2 oe	2	A1 for 0.2 oe as a fraction or percentage eg.20%, $\frac{1}{5}$ etc.
(b)	0.15×40 oe	6	2	M1 A1 cao NB. An answer of $\frac{6}{40}$ scores M1 A0
Total 4 marks				

Question Number	Working	Answer	Mark	Notes
10. (a)	$1 - (0.15 + 0.4 + 0.35)$	0.1	2	M1 A1 oe
(b)	$0.15 + 0.4$	0.55	2	M1 A1 oe
				Total 4 marks

Question	Working	Answer	Mark	Notes
11. (a)	$1 - (0.4 + 0.35 + 0.1)$	0.15 oe	2	M1 A1 Accept as a decimal, fraction or percentage
(b)	80×0.35 oe	28	2	M1 A1 NB. $\frac{28}{80}$ oe gains M1 A0
				Total 4 marks

Question	Working	Answer	Mark	Notes
12. (a)		0.9 oe	1	B1 accept 90% or $\frac{9}{10}$ oe
(b)	50×0.1 oe		5	M1 50×0.1
			2	A1 cao
				Total 3 marks