

Revision F4 (November Exam) [51] MARKSCHEME

1.

- (a) $1 - 0.6 - 0.25$ M1
0.69 implies M1 if 0.31 seen
- 0.15 A1
- (b) $10 \div 0.25$ M1
oe
or 40 seen
- their 40×0.6 M1dep
- 24 A1
- (c) (i) 0.6 on all “up” branches 0.4 on all “down” branches B1
- (ii) 0.6×0.6 or 0.6×0.4 or 0.4×0.6 M1
one correct product seen (could be on tree diagram)
- addition of 2 or more of these M1dep
- 0.84 A1
- Alternative method
- 0.4×0.4 M1
- $1 - \text{their } 0.16$ M1dep
- 0.84 A1

[9]

2.

(a)	400 g 200 g 300 g	2 1 AO1.3a 1 AO3.1c	M1 for 9 soi
(b)	Profit = £18.20	5 2 AO1.3b 2 AO3.1d 1 AO3.3	M1 Multiply <i>their</i> weights by 5 M1 Find number of each required M1* calculate total cost *M1 dep subtract from £60

3.

- (a) 2500×0.1 or 250 oe M1
 2750×0.1 or 275 oe M1
 3025 A1
or 2500×1.1 or 2750 or 2750×1.1
M2 for 2500×1.1^2
SC1 500 or 3000 SC2 525
- (b) $1320 \div 110$ M1
 (their 12) $\times 100$ M1 dep
 1200 A1
M2 for $1320 \div 1.1$

[6]

4.

- (a) 2, 10 and 26 seen [M1] soi
 $2 \times 10 \times 10 \times 26 \times 26 = 135200$ [A1]
- (b) Two students could have the same code [R1] oe

5.

(a) $4x + 12 = 9x - 18$ M1
Allow one error

$5x = 30, -30 = -5x$ A1ft
ft if M1 awarded and equation is in form $ax = b$ with no further errors

$x = 6$ A1ft
Follow through only if M1 awarded for fully correct first line and one error made in rearranging so A0 awarded, and their equation of form $ax = b$ is solved correctly

(b) Attempt to balance x or y and eliminate by adding or subtracting M1

eg $15x + 9y = 18$
 $15x - 35y = 95$

Followed by an attempt to subtract

$44y = -77$

or

eg $35x + 21y = 42$

$9x - 21y = 57$

Followed by an attempt to add

$44x = 99$

Award M1 for attempt to rearrange one equation and substitute into the other

Solving resulting equation to find $x = 2.25$ or $y = -1.75$ A1

Attempt to eliminate other variable or substitution of found value into an equation M1

NB Could start again

eg $11.25 + 3y = 6, 5x - 5.25 = 6$

Solving to find other value A1
 $y = -1.75$ or $x = 2.25$

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6.

$\frac{25}{31}$ oe	4 1 AO1.3b 1 AO2.3b 2 AO3.1d	B3 for 25 Or M2 for $(28 + 31 + 12) - 46$ or correct diagram with 3 out of 4 correct elements Or M1 for $\frac{n}{31}, n < 31$	Accept any correct method
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7.

Complete proof	M1 M1 C1	Begins proof $BAE=ACD$ and $ABE=EDC$ $AB = DC$ because opposite sides of a parallelogram are equal Completes proof with all reasons eg alternate angles are equal and reference to ASA
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8.

(a) $pq, (1-p)q$ and $(1-p)(1-q)$ B2
-1 eeo (correct prob. in correct place in table)

(b) $pq + p(1-q) + q(1-p) + (1-p)(1-q)$
 $pq + p - pq + q - pq + 1 - p - q + pq$ M1
Allow one slip only (since fairly easy expansion)

total = 1 A1
for correct simplification, clearly shown

(c) $0.9 \times q = 0.765$ M1
oe Allow any symbol for unknown

$q = 0.85$ A1
oe eg. 765/900

[6]

9.

(a) 1st branches label(s) and probs correct B1
Must have 1 label and both probs correct

2nd branches label(s) and probs correct B1 B1
B1 each set. Must follow from 1st set of branch labels correctly

(b) 0.2×0.4 or 0.8×0.7 M1
Any correct product (not ft)

$0.2 \times 0.4 + 0.8 \times 0.7$ M1
Adding the correct products

= 0.64 A1
 $0.8 + 0.56 = 0.64 \Rightarrow MIM1A0$

[6]