

## Revision C F4 (End of Year Exam) [30] MARKSCHEME

1.

<b>Alternative method 1</b>		
$18 \div (3 + 2)$ or 3.6	M1	
their $3.6 \times 3 \times 2.8(0)$ or 30.24(0)	M1dep	
their $3.6 \times 2 \times 3.5(0)$ or 25.2(0)	M1dep	dep on first M1
55.44	A1	
<b>Alternative method 2</b>		
$3 \times 2.8(0) + 2 \times 3.5(0)$ or 15.4(0)	M1	
$18 \div (3 + 2)$ or 3.6	M1	
their $3.6 \times$ their 15.4(0)	M1dep	dep on M1 M1
55.44	A1	
<b>Alternative method 3</b>		
$3 \times 2.8(0) + 2 \times 3.5(0)$ or 15.4(0)	M1	
their $15.4(0) \div 5$ or 3.08	M1dep	
their $3.08 \times 18$	M1dep	
55.44	A1	

2.

- (a) Probabilities of 0.7, 0.3, 0.4, 0.6  
on '2<sup>nd</sup> game' column B1  
*SCI either 'top half' or 'bottom half' correct*
- Probabilities of 0.4, 0.6, 0.7, 0.3  
on '3<sup>rd</sup> game' column B1
- (b)  $0.5 \times 0.7$  M1  
*ft their probabilities (if using values < 1)*  
*(not 0.5)*
- $0.5 \times 0.3 \times 0.4$  or  $0.5 \times 0.4 \times 0.7$  M1  
*ft as above*
- addition of three valid probabilities M1dep  
*ft their values*  
*(note dependent on first two marks)*
- 0.55 A1

If probabilities are all 0.5, and there is a correct attempt at one of the alternatives, award SC 1

If they work out the prob. that Simon wins,  
 $0.5 \times 0.6$  (M1) (ft their probs. in all of these)

$0.5 \times 0.4 \times 0.3$  or  $0.5 \times 0.3 \times 0.6$  (M1)

$1 -$  (addition of valid three) (M1dep)

0.55 (A1)

[6]

3.

(a) (i) 5, 9, 13 B2

-1 each error or omission  
 B1 for 1, 5, 9 or 9, 13, 17

(ii) no and valid reason B1

eg 121 is in the sequence  
 (all) terms are odd  
 122 is even  
 $121 \div 4$  not integer

note: "no" can be implied

(b)  $3n + 1$  oe B2

B1 for  $3n + c$  or  $kn + 1$   
 B1 for  $n^3 + 1$  unless notation already penalised  
 ignore fw

[5]

4.

Alternative method 1		
1.2 or 0.85	M1	
$1 \div 0.85$ or 1.1(7...) or 1.18	M1	
1.1(7 ) or 1.18 and 1.2 and (Option) A	A1	
Alternative method 2		
1.2 or 0.85	M1	
$1 \div 1.2$ or 0.83( )	M1	
0.83( ) and 0.85 and (Option) A	A1	

Alternative method 3		
450 × 1.2 or 540 or x × 0.85 or 0.85x	M1	x is the usual cost of the box and may be a numerical value
x ÷ their 540 or their 0.85x ÷ 450	M1dep	
0.00185( )x and 0.00188( )x and (Option) A	A1	oe
Alternative method 4		
450 × 1.2 or 540 or x × 0.85 or 0.85x	M1	x is the usual cost of the box and may be a numerical value
their 540 ÷ x or 450 ÷ their 0.85x	M1dep	
$\frac{540}{x}$ and $\frac{529.(\dots)}{x}$ and (Option) A	A1	oe
Alternative method 5		
$\frac{1}{6}$ (free for A)	M1	oe fraction or decimal or percentage
$\frac{3}{18}$ (free for A) and $\frac{3}{20}$ (free for B)	M1	oe pairs of fractions or pairs of decimal or pairs of percentages
$\frac{3}{18}$ (free for A) and $\frac{3}{20}$ (free for B) and (Option) A	A1	

5.

Sight of fraction  $5/6$  or  $6/5$   
oe

M1

$x = 6 \times 6/5$   
oe

M1

7.2

A1

[3]

6.

12% increase	5 2 AO1.3b 1 AO2.3b 1 AO3.1d 1 AO3.3	B4 for answer 12% or 112% or 1.12 <b>seen</b> Or M3 for $[50 \times] 1.4 \times 0.8$ <b>oe soi</b> by 56 Or M2 for $50 \times 1.4$ <b>oe soi</b> by 70 or <i>their</i> $(50 \times 1.4) \times 0.8$ <b>oe</b> Or M1 for 1.4 or 0.8 <b>seen</b>	Could be longer method in 2 steps
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7.

25	<p>P1 For process to start to solve. Eg use of <math>x</math> and <math>4x</math> or <math>x/5x</math> and <math>4x/5x</math></p> <p>P1 process to form equation eg <math>\frac{x}{5x} \times \frac{x-1}{5x-1} = \frac{6}{155}</math></p> <p>P1 Processes to eliminate fractions and reduce equation to linear form eg. <math>155x - 155 = 150x - 30</math></p> <p>A1</p>
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