## UNIT 1 (HIGHER TIER)

Methods Unit 1 Higher Tier June 2014	Mark	Comment
1. $a = 52^{\circ}$	B1	
$b = 128^{\circ}$	B1	
$c = 128^{\circ}$	B1	FT their $\mathbf{b} = \mathbf{c}$
$d = 40^{\circ}$	B1	FT $92 - \text{their } a, \text{ or } \text{their } b - 88,$
		or their $c - 88$ , or $128$ – their $e$
$e = 88^{\circ}$	B1	
	5	
2. Considering all possible outcomes, e.g. use of two-	B3	Accept 6/25 and 16/25. No extra outcomes should
way table, or showing all possible totals, or		be included, e.g. including numbers not on the
(Game card A) 6 possible (ways or outcomes) AND		spinners
(Game card B) 16 possible (ways or outcomes)		If card A list complete, accept stopping listing card
Example:		B possibilities as soon as >0 possible ways indicated connectly
Example. $1  2  3  4  5$		
+ 1 2 3 4 5 1 2 3 4 5		B2 for at least 1 possible outcome indicated for
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		each of the 4 numbers on card A AND at least 2
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		possible outcomes indicated for each of the 4
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		numbers on card B. OR for all possible outcomes
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		for card B
3 0 7 8 7 10		
		B1 for 1 way of scoring a number on card A AND
		2 ways for a number on card B, OR all outcomes
		for card A
Conclusion, game card B has the better chance	<b>E</b> 1	
	EI	The conclusion must be based on working, i.e.
Look for:		provided at least B2 previously awarded
<ul> <li>clear organisation, ordered lists or tables</li> </ul>		
<ul> <li>labels linking working and game cards</li> </ul>	OWC	OWC2 Presents relevant material in a scherent and
<ul> <li>clear explanation in a conclusion</li> </ul>	2	QwC2 Fresents relevant material in a conferent and
<ul> <li>if used, correct notation for probability</li> </ul>		form and with few if any errors in spelling
		punctuation and grammar
		punctuation grannar
QWC2: Candidates will be expected to		QWC1 Presents relevant material in a coherent and
• present work clearly, with words explaining		logical manner but with some errors in use of
process or steps		mathematical form, spelling, punctuation or
		grammar
• make few if any mistakes in mathematical		OR
include units in their final ensurer		evident weaknesses in organisation of material but
include units in their finar answer		using acceptable mathematical form, with few if
OWC1: Candidates will be expected to		any errors in spelling, punctuation and grammar.
• present work clearly, with words explaining		OWCO Evident weeknesses in enconiection of
process or steps		web Evident weaknesses in organisation of material and errors in use of mathematical form
OR		spelling punctuation or grammar
• make few if any mistakes in mathematical		spennig, pulletauton of grammar.
form, spelling, punctuation and grammar and	6	
include units in their final answer		
3.(a) 18 or equivalent	B1	Accept a product of factors
(b) 12 or equivalent	B1	Accept a product of factors
(c) 9	B2	B1 for sight of 3, or $\frac{1}{4} + \frac{2}{4}$ , or $0.25 + 2.75$
(d) Numerator 0.06(0) or 1 correct step in calculation	BI	ET demending on their man
multiple of 10 for eliminating desimple or correct	DI	r 1 depending on their numerator.
(FT) evaluation as a decimal		These 1st 2 B marks are interchangeable
		A final answer of 0 001 is awarded R1 R1 R0
1/1000	B1	CAO
		(Example: $0.60/60 = 0.01$ or $1/100$ or $6/600$
		is awarded B0, B1, B0
	7	60/600 as a 1 <sup>st</sup> stage is awarded B0, B0, B0

4. (a) Square or rectangle or isosceles trapezium	B1	
(b) Parallelogram or rhombus or rectangle	B1	
(c)(i)(-5,4)	B1	
(i)(i)(5,-4)	B1	
(II) (3, 4)	4	
5(a) h + 4 - 5a or $5a - 4 h$	P1	FT until 2 <sup>nd</sup> error
3.(a) II + 4 = 5e $0I - 5e = -4 - II$	DI D1	$\begin{bmatrix} r_1 & \text{unu} & 2 & \text{end} \\ (r_2 & Ab & 5 & 1 & \text{end} \\ (r_3 & Ab & 5 & 1 & \text{end} \\ (r_3 & Ab & 5 & 1 & \text{end} \\ (r_3 & Ab & 5 & 1 & \text{end} \\ (r_3 & r_3 & r_3 & r_3 & r_3 & 1 & \text{end} \\ (r_3 & r_3 & r_3 & r_3 & r_3 & r_3 & \text{end} \\ (r_3 & r_3 & r_3 & r_3 & r_3 & r_3 & \text{end} \\ (r_3 & r_3 & r_3 & r_3 & r_3 & r_3 & \text{end} \\ (r_3 & r_3 & r_3 & r_3 & r_3 & r_3 & \text{end} \\ (r_3 & r_3 & r_3 & r_3 & r_3 & r_3 & \text{end} \\ (r_3 & r_3 & r_3 & r_3 & r_3 & r_3 & \text{end} \\ (r_3 & r_3 & r_3 & r_3 & r_3 & r_3 & \text{end} \\ (r_3 & r_3 & r_3 & r_3 & r_3 & r_3 & r_3 & \text{end} \\ (r_3 & r_3 & r_3$
$e = \underline{n+4}$ or $e = \underline{-4-n}$	BI	(e.g. 4n=se leading to 4n/s = e is dwarded B0, B1)
<b>3</b> -3	D 1	
(b) (1) 9	BI	
(ii) 6	B1	
(iii) 3	B1	
	5	
6.(a) False with valid general reason, OR	E2	For example 'false, there is always 1 and the
a correct general statement without selection of false		number itself', or 'false, as they have exactly two
, i i i i i i i i i i i i i i i i i i i		factors'
		E1 for sight of at least 2 prime numbers, with <b>no</b>
		errors in choice of primes and a list of the factors
		of at least 2 prime numbers
		Panalisa incorract reference to factors
		Choice TRUE but compet con and statement allow
		Choice IRUE but correct general statement allow
(b) True with valid general reason, OR a correct	E2	For example the square root is a factor times by
general statement without selection of true		itself, (other factors are in pairs)'
		E1 for evidence of working with at least 2 square
		numbers, with no errors in choice of square
		numbers leading to
		correct factors
		OR
		• statement of the correct number of
		factors
		OK
		• 1 of each (1 example of factors and 1
		example of number of factors)
	4	Choice FALSE but correct general statement allow
	4	SCI
7. $360 \div 9$	M1	
X has <b>40</b> sides	A1	An unsupported answer is awarded M1, A1
$360 \div (180 - 120)$ OR equivalent full method	M1	
working with interior angles		
Y has <b>6</b> sides	A1	An unsupported answer is awarded M1, A1
	4	, in the second s
8 Interpretation that 36cm is 8 parts	S1	Or sight of $36 \div 8$ or $36/8$ or $4.5$
$3 \times 36 \div 8 + 36$ OR $(3 + 8) \times 36 \div 8$	M1	Full method to calculate $\Delta C$ FT their
$3 \times 30 \cdot 0 + 30$ OK $(3 \pm 0) \times 30 \pm 0$	1411	miscalculated 36: 8 not for 36.11
40.5(cm)  or  40.1/2(cm)	Δ 1	CAO Do not accost 50(cm) unloss 40.5 score
+7.J(UII) 01 47 72 (UIII)	2	CAO. DO HOL ACCEPT JOICHII), UIHESS 49.3 SEEH
	3	
9.(a) o	В2	B1 for sight of $4 \times 6$ or $4 \times 2 \times 3$ or $2^{5} \times 3$
		UK for sight of 144. Not for $2 \times 12$ , this is B0
(b) 0.1212 or 0.12	B2	B1 for 0.12 or 0.12 or 0.12 as an answer or seen
		in working
(c) 1/40	B2	B1 for sight of 25/1000 or equivalent unsimplified
	6	fraction

10.(a)(i) 4n + 3	B2	B1 for 4n
(ii) - 2n + 74	B2	B1 for $-2n$ Allow SC1 for $2n + 74$
$(1)^{-211} + 74$ $(11)^{-211} + 74$	D2 D2	D1 for $n^2$ not $an^2$ where $a \neq 1$ OP
(111) 11 – 8	D2	D1 for if , not all where $a \neq 1$ , OK
		B1 for sight of second differences 2
(b) $3 \times 20^2 + 4$	M1	Must clearly be $20^2$ not $(3 \times 20)^2$
= 1204	A1	CAO
	8	
$11.(a) 2 \times 10^{10}$	B2	B1 for $20 \times 10^9$ or $0.2 \times 10^{11}$ or similar attempt at
		standard form
		$D_0 f_{-\pi} 20,000,000,000$
		B0 for 20 000 000 000
(b) $7.3 \times 10^{\circ}$	B2	B1 for 10°( 5 + 6.8×10) or $73 \times 10^{\circ}$ or $0.73 \times 10^{10}$
		or similar attempt at standard form
		B0 for 7 300 000 000
		If no marks in (a) & (b) then SC1 for both answers
	4	if no marks in (a) $\alpha$ (b) not sol for both answers
	4 D2	
12.(a)(1)  6x(2x+3y)	B2	BI for a correct partially factorised expression, OR
		for sight of $6x(2x \dots)$ or $6x(\dots + 3y)$
(ii) $(x + 10)(x - 10)$	B1	
(b) $(x + 2)(x - 7)$ (=0)	B2	B1 for $(x 2)(x 7)$
x = -2 and $x = 7$	B1	Must be from factorised expression or equation
	6	FT from their pair of brackets
12 (a) Euclaine negalial with interpretion wavis at 2	E1	Must imply parallal and mantian (vartical)
15.(a) Explains parallel with intersection y-axis at 5,	EI	Must mpry paranet and mention (vertical)
e.g. same gradient with intersection at $(y=)3^{\circ}$		translation
		Allow 'put the line up another 3 squares'
		Do not accept 'm=1, c=3' unless related to $y = x$ ,
(b) Reflection (in x-axis) or perpendicular (through the	E1	Accept use of knowledge 'm $\times$ -1/m = -1', or
origin) or change the sign of the v-coordinate		$m_1 \times m_2 = -1$
origin) of change the sign of the y coordinate		$D_{0}$ not accept 'diagonally downwards' 'opposite
		(dimention)' on 'managed (dimention)' on 'managed
		(direction), or reversed (direction), or swap the
		coordinates
		Allow 'same but decreasing instead of increasing
		(as it is minus)', 'rotate 90° (about the origin)',
	2	'change the sign of one of the coordinates'
14.(a) 0.35 0.8 0.2 0.8 on the correct branches	B2	B1 for any two correct entries. Accept fractions
(b) $0.65 \times 0.2$	M1	
(0) 0.03 × 0.2	A 1	
= 0.13		
	4	
15.(a) Correct region shaded	BI	Union of A and B
(b) Correct region shaded	B1	All shaded except the intersection of A with B
(c) Correct region shaded	B1	All except the non overlap region of A
	3	
16.		The E1 mark depends on the B1 or sight of a
		correct method
		For E marks: Do not accent calculation
() 27(0)	DI	FOR E marks. Do not accept calculation
(a) 5/(2)	BI	
Alternate segment theorem <b>and</b> isosceles triangle	El	Or equivalent.
(b) 55(°)	B1	
(Isosceles triangle,) angle at centre twice angle at	E1	Or equivalent.
circumference	4	
$17.30 \times 70 - 35 \times AC$ OR $30 \times (30 \pm 40) - 35 \times AC$	M1	May be within a calculation towards AB directly
$17.50 \times 10 = 33 \times AC$ OK $30 \times (30 \pm 40) = 33 \times AC$	A 1	May be implied in further working
AC = 00 (CIII)	AI m1	The second secon
AB = 60 - 35	ml	FI for their AC provided MI awarded
= 25 (cm)	Al	

18.(a)(1) Sketch of $y=x^*$ symmetrical passing through the originB1Mark intention to be symmetrical passing through the origin(ii) Sketch of $y=1/x$ in appropriate 2 quadrants with axes as asymptotesB2B1 for sketch in 1 quadrant with axes as asymptotes, of $rot 2$ curves appropriately in both quadrants but not clearly with intention of axes as asymptotes(b) Sketch of $y = 2^x$ through (0,1), with 1 indicated on the y-axis or coordinate (0, 1) givenB2B1 for general shape, towards zero gradient for greater negative values of x, clearly through a point on positive y-axis19.Substitution of (2, 26), e.g. sight of $26 = k \times 2^2 + 3 \times 2$ $k = 5$ A1Equating $y = 0$ , e.g. sight of $0 = kx^2 + 3x$ M1 $x(5x + 3) = 0$ $(0, 0)$ or $x = -3/5$ or equivalentsM1 $a(3/5, 0)$ or $x = -3/5$ or equivalentsA1 $4(3x+2) - 5(5x-2) + 14$ or equivalent $20$ B1 for $a = (+)7$ , B1 for $b = 4$ , only award B2 for $(x + 7)^2 + 4$ $4(3x+2) - 5(5x-2) + 14$ or equivalent $20$ M1 $\frac{4(3x+2) - 5(5x-2) + 14}{20}$ M1 $\frac{12x + 8 - 25x + 10 + 14}{20}$ M1 $\frac{12x + 8 - 25x + 10 + 14}{20}$ M1 $\frac{12x + 8 - 25x + 10 + 14}{20}$ M1 $\frac{12x + 8 - 25x + 10 + 14}{20}$ M1 $\frac{12x + 8 - 25x + 10 + 14}{20}$ M1 $\frac{12x + 8 - 25x + 10 + 14}{20}$ M1 $\frac{12x + 8 - 25x + 10 + 14}{20}$ M1 $\frac{12x + 8 - 25x + 10 + 14}{20}$ M1 $\frac{12x + 8 - 25x + 10 + 14}{20}$ M1 $\frac{12x + 8 - 25x + 10 + 14}{20}$ M1 $\frac{12x + 8 - 25x + 10 + 14}{20}$ M1 $12x + 8 - 25x $			
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$\begin{array}{c} 100 \text{ merced} \text{ merced}$	axes as asymptotes		asymptotes, or for 2 curves appropriately in both
(b) Sketch of $y = 2^{5}$ through (0,1), with 1 indicated on the y-axis or coordinate (0, 1) givenB2B1for general shape, towards zero gradient for greater negative values of x, and rising for greater positive values of x, clearly through a point on positive y-axis19.Substitution of (2, 26), e.g. sight of $26 = k \times 2^{2} + 3 \times 2$ $k = 5$ M1Equating $y = 0$ , e.g. sight of $0 = kx^{2} + 3x$ $(-3/5, 0)$ or $x = 0$ $(-3/5, 0)$ or $x = -3/5$ or equivalentsM120.(a) $(x + 7)^{2} + 4$ B2B1 for $a = (+7)7$ , B1 for $b = 4$ , only award B2 for $(x + 7)^{2} + 4$ (b) Attempt to use common denominatorB1e.g. allow sight of all 3 fractions denominator 20 without change to numerators $\frac{4(3x+2)-5(5x-2)+14}{20}$ M2M1 for 2 of the three terms correct. May be expressed as separate fractions, or working without consideration of the denominator $\frac{12x+8-25x+10+14}{20}$ A1Convincing step. FT from 1 error, i.e. M1. Must follow from correct working $= 32-13x \\ 20$ 721.Sight of P(A') = 0.6 \\ 0.6 \times x = 0.48 OR $x = 0.48/0.6$ B1 $x = 0.8$ M1FT their 1 - 0.4 incorrectly evaluated for M1 only, do not FT 0.4 for P(A')			quadrants but not clearly with intention of axes as
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(b) Sketch of $y = 2$ infroign (0,1), with 1 indicated on the y-axis or coordinate (0, 1) givenB2B1 for general snape, towards zero gradient for greater negative values of x, and rising for greater positive values of x, clearly through a point on positive y-axis19.Substitution of (2, 26), e.g. sight of $26 = k \times 2^2 + 3 \times 2$ $k = 5$ M1 FT their k with $k \neq 0$ , including 'k' Extracting common factor, accept $x(kx + 3) = 0$ (0, 0) or $x = 0$ (-3/5, 0) or $x = -3/5$ or equivalentsM1 FT their k with $k \neq 0$ , including 'k' Extracting common factor, accept $x(kx + 3) = 0$ Must be form correct working Accept $x = -3/k$ . Not dependent on m120.(a) $(x + 7)^2 + 4$ B2 (0) or $x = -3/5$ or equivalent (20)B1 for $a = (+7)$ , B1 for $b = 4$ , only award B2 for $(x + 7)^2 + 4$ e.g. allow sight of all 3 fractions denominator 20 without change to numerators M1 for 2 of the three terms correct. May be expressed as separate fractions, or working without consideration of the denominator $\frac{12x + 8 - 25x + 10 + 14}{20}$ or equivalent $20$ M2 $\frac{12x + 8 - 25x + 10 + 14}{20}$ requivalent $20$ A1 $\frac{12x + 8 - 25x + 10 + 14}{20}$ A1FT their 1 - 0.4 incorrectly evaluated for M1 only, do not FT 0.4 for P(A') $\frac{12x + 8 - 25x + 10 + 14}{20}$ R1CAO		D2	
the y-axis or coordinate (0, 1) given $\begin{array}{c} \mbox{greater} \\ \mbox{greater} \\ \mbox{positive values of x, and rising for greater} \\ \mbox{positive values of x, clearly through a point on} \\ positive values of x, clearly through a positive values of x, clearly through a point on positive values of x, clearly through a positive values of x, through a p$	(b) Sketch of $y = 2$ through (0,1), with 1 indicated on	B2	BI for general snape, towards zero gradient for
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5positive y-axis19.Substitution of (2, 26), (e.g. sight of $26 = k \times 2^2 + 3 \times 2$ $k = 5$ M1Equating $y = 0$ , e.g. sight of $0 = kx^2 + 3x$ $x(5x + 3) = 0$ $(0, 0)$ or $x = 0$ $(-3/5, 0)$ or $x = -3/5$ or equivalentsM1FT their k with $k \neq 0$ , including 'k' Extracting common factor, accept $x(kx + 3) = 0$ Must be from correct working A1Accept $x = -3/k$ . Not dependent on m120.(a) $(x + 7)^2 + 4$ B2B1 for $a = (+)7$ , B1 for $b = 4$ , only award B2 for $(x + 7)^2 + 4$ (b) Attempt to use common denominator $(20)$ B1B1 $\frac{4(3x+2)-5(5x-2)+14}{(20)}$ or equivalent $20$ M1 $\frac{12x + 8 - 25x + 10 + 14}{20}$ or equivalent $20$ M2 $\frac{12x + 8 - 25x + 10 + 14}{20}$ A1 $\frac{32 - 13x}{20}$ A1 $21.Sight of P(A') = 0.6$ $0.6 \times x = 0.48$ OR $x = 0.48/0.6$ B1 M1 $x = 0.8$ A1			positive values of x, clearly through a point on
19.Substitution of (2, 26), e.g. sight of $26 = k \times 2^2 + 3 \times 2$ $k = 5$ M1Equating $y = 0$ , e.g. sight of $0 = kx^2 + 3x$ A1Equating $y = 0$ , e.g. sight of $0 = kx^2 + 3x$ M1 $x(5x + 3) = 0$ $(0, 0)$ or $x = 0$ $(-3/5, 0)$ or $x = -3/5$ or equivalentsM1Equating $(-3/5, 0)$ or $x = -3/5$ or equivalentsA1Accept $x = -3/k$ . Not dependent on m1 $(-3/5, 0)$ or $x = -3/5$ or equivalentsB1 $(-3/5, 0)$ or $x = -3/5$ or equivalentsB1 $(-3/5, 0) = 0$		5	positive y-axis
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$\frac{1}{x(5x+3)=0}$ $\frac{1}{(-3/5,0)} \text{ or } x = 0$ $(-3/5,0) \text{ or } x = -3/5 \text{ or equivalents}$ $\frac{1}{6}$ $\frac{1}{20.(a)} (x+7)^2 + 4$ $\frac{1}{6}$ $\frac{1}{20.(a)} (x+7)^2 + 4$ $\frac{1}{6}$ $\frac{1}$	Equating $y = 0$ e.g. sight of $0 = kx^2 + 3x$	M1	FT their k with $k \neq 0$ including 'k'
$\frac{4(3x+2)-5(5x-2)+14}{20} \text{ or } x = 0.48 \text{ OR } x = 0.48 \text{ OB } x = $	x(5x + 3) = 0	m1	Extracting common factor accent $v(ky \pm 3) = 0$
$\frac{(-3/5, 0)}{(-3/5, 0)} \text{ or } x = -3/5 \text{ or equivalents} $ $\frac{A1}{6}$ $\frac{A1}{4} \text{ Accept } x = -3/k. \text{ Not dependent on m1}$ $\frac{(-3/5, 0)}{6} \text{ or } x = -3/5 \text{ or equivalents} $ $\frac{A1}{6}$	(0, 0) or $y = 0$	A 1	Extracting containing ratio, accept $x(xx + 3) = 0$ Must be from correct working
$\frac{(-5/5, 0)}{20.(a)} \text{ or } x = -5/5 \text{ or equivalents}$ $\frac{A1}{6}$ $\frac{Accept x = -3/k. \text{ Not dependent on min}}{6}$ $\frac{20.(a) (x + 7)^2 + 4}{(b) \text{ Attempt to use common denominator}}$ $\frac{4(3x+2) - 5(5x-2) + 14}{(20)} \text{ or equivalent}}$ $\frac{4(3x+2) - 5(5x-2) + 14}{(20)} \text{ or equivalent}}$ $\frac{4(3x+2) - 5(5x-2) + 14}{(20)} \text{ or equivalent}}$ $\frac{12x + 8 - 25x + 10 + 14}{20} \text{ or equivalent}}$ $\frac{12x + 8 - 25x + 10 + 14}{20} \text{ or equivalent}}$ $\frac{12x + 8 - 25x + 10 + 14}{20} \text{ or equivalent}}$ $\frac{12x + 8 - 25x + 10 + 14}{20} \text{ or equivalent}}$ $\frac{12x + 8 - 25x + 10 + 14}{20} \text{ or equivalent}}$ $\frac{12x + 8 - 25x + 10 + 14}{20} \text{ or equivalent}}$ $\frac{12x + 8 - 25x + 10 + 14}{20} \text{ or equivalent}}$ $\frac{12x + 8 - 25x + 10 + 14}{20} \text{ or equivalent}}$ $\frac{12x + 8 - 25x + 10 + 14}{20} \text{ or equivalent}}$ $\frac{12x + 8 - 25x + 10 + 14}{20} \text{ or equivalent}}$ $\frac{12x + 8 - 25x + 10 + 14}{20} \text{ or equivalent}}$ $\frac{12x + 8 - 25x + 10 + 14}{20} \text{ or equivalent}}$ $\frac{12x + 8 - 25x + 10 + 14}{20} \text{ or equivalent}}$ $\frac{12x + 8 - 25x + 10 + 14}{20} \text{ or equivalent}}$ $\frac{12x + 8 - 25x + 10 + 14}{20} \text{ or equivalent}}$ $\frac{12x + 8 - 25x + 10 + 14}{20} \text{ or equivalent}}$ $\frac{12x + 8 - 25x + 10 + 14}{20} \text{ or equivalent}$ $\frac{12x + 8 - 25x + 10 + 14}{20} \text{ or equivalent}$ $\frac{12x + 8 - 25x + 10 + 14}{20} \text{ or equivalent}$ $\frac{12x + 8 - 25x + 10 + 14}{20} \text{ or equivalent}$ $\frac{12x + 8 - 25x + 10 + 14}{20} \text{ or equivalent}$ $\frac{12x + 8 - 25x + 10 + 14}{20} \text{ or equivalent}$ $\frac{12x + 8 - 25x + 10 + 14}{20} \text{ or equivalent}$ $\frac{12x + 8 - 25x + 10 + 14}{20} \text{ or equivalent}$ $\frac{12x + 8 - 25x + 10 + 14}{20} \text{ or equivalent}$ $\frac{12x + 8 - 25x + 10 + 14}{20} \text{ or equivalent}$ $\frac{12x + 8 - 25x + 10 + 14}{20} \text{ or equivalent}$ $\frac{12x + 8 - 25x + 10 + 14}{20} \text{ or equivalent}$ $\frac{12x + 8 - 25x + 10 + 14}{20} \text{ or equivalent}$ $\frac{12x + 8 - 25x + 10 + 14}{20} \text{ or equivalent}$ $\frac{12x + 8 - 25x + 10 + 14}{20} \text{ or equivalent}$ $\frac{12x + 8 - 25x + 10 + 14}{20} \text{ or equivalent}$ $\frac{12x + 10 + 10}{20} \text{ or equivalent}$ $12x +$	(0,0) of $x=0(2/5,0)$ or $x=2/5$ are environmentation		A second as 2/1. Not demondant on m1
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$\frac{12x + 8 - 25x + 10 + 14}{20} \text{ or equivalent}$ $= \frac{32 - 13x}{20}$ $\frac{32 - 13x}{20}$ $\frac{31}{20}$ $\frac{31}$			without consideration of the denominator
$\frac{12x + 10}{20}$ $= \frac{32 - 13x}{20}$ $= \frac{32 - 13x}{20}$ $\frac{32 - 13x}{20}$ $= \frac{32 - 13x}{20}$ $\frac{11}{7}$ $= \frac{11}{7}$ $\frac{11}{7}$	12x + 8 - 25x + 10 + 14 or equivalent	A1	Convincing step FT from 1 error i e M1
$= \frac{32 - 13x}{20}$ $= $	$\frac{12\kappa+6-25\kappa+16+11}{20}$ or equivalent		Must be clearly implying $\pm 10$ term rather than $-10$
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$= \frac{32 - 13x}{20}$ A1 Must follow from correct working 7 21.Sight of P(A') = 0.6 0.6 × x = 0.48 OR x = 0.48/0.6 N1 FT their 1 - 0.4 incorrectly evaluated for M1 only, do not FT 0.4 for P(A') $= x - 0.8$ A1 CAO	22 12		Denominator must be seen
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do  not FT  0.4  for  P(A')	$0.6 \times x = 0.48$ OR $x = 0.48/0.6$	M1	FT their 1 - 0.4 incorrectly evaluated for M1 only,
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$\lambda = 0.0$ AI CAO	x = 0.8	A1	CAO
3		3	