

November 2011

1380 2F					
Question		Working	Answer	Mark	Notes
1	(a)		4.3	1	B1 cao
	(b)		24	1	B1 cao
2	(i)	17 55 + 1 20 Or 17:55 + 5min = 18:00 18:00 + 1 hr = 19:00 19:00 + 15 min = 19:15	19 15	3	M1 for 17 55 + 1 20 oe or a complete build up method or 1875 or 1835 A1 for 19 15 , 7 15 pm oe
	(ii)	18 34 – 17 55	39		B1 ft 19:54 – ‘19 15’
3	(a)		0.89, 1.2, 7.01, 13.1	1	B1 cao
	(b)		-8, -3, 0, 2, 6	1	B1 cao
	(c)		$15 - 4 \times (2 + 1) = 3$	1	B1 for $15 - 4 \times (2 + 1) = 3$ oe
4	(a)		(-4, 3) (0, -2)	2	B1 cao B1 cao
	(b)		(-2, 0.5)	2	B2 or ft from (a) [B1 ft for (-2, y) or (x, 0.5) or (0.5, -2) or $\left(\frac{-'4'+'0'}{2}, \frac{'3'+'-2'}{2}\right)$ ]
5			6 105° 16	3	B1 cao B1 105° accept without degree sign tol ±2° B1 cao

1380 2F																					
Question		Working		Answer	Mark	Notes															
6		$6 \times 6 - 4 \times 2$		28 cm <sup>2</sup>	2	B1 cao B1 for cm <sup>2</sup> oe															
7	(a)			8	1	B1 for 8 cm $\pm$ 2 mm															
	(b)			50°	1	B1 for an angle in the range 48° to 52°															
	(c)			Overlay	1	B1 for angle drawn within guidelines [Allow an angle of 130° accurately drawn anywhere]															
8	(a)	<table border="1"> <thead> <tr> <th>Country</th> <th>Tally</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>England</td> <td>    </td> <td>5</td> </tr> <tr> <td>Ireland</td> <td> </td> <td>1</td> </tr> <tr> <td>Scotland</td> <td>         </td> <td>10</td> </tr> <tr> <td>Wales</td> <td>\  </td> <td>2</td> </tr> </tbody> </table>	Country	Tally	Frequency	England		5	Ireland		1	Scotland		10	Wales	\	2			2	M1 for attempting a tallying process A1 for a fully correct tally chart [SC If  M0 then B1 for a fully correct frequency column]
	Country	Tally	Frequency																		
England		5																			
Ireland		1																			
Scotland		10																			
Wales	\	2																			
(b)			Bars of height 5, 1, 10 and 2	2	B2 or ft for a fully 'correct' bar chart [B1 ft for 1 'correct' bar]																

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Question		Working	Answer	Mark	Notes
9	(a)		$\frac{5}{12}$	1	B1 cao
	(b)		0.375	1	B1 cao
	(c)	$\frac{9}{24}, \frac{10}{24}, \frac{7}{24}, \frac{4}{24}$ compared to $\frac{6}{24}$ OR 0.37(5), 0.41(6..., 0.29(166..., 0.16(6.. compared to 0.25 OR 37(.5)%, 41.(6...%, 29.(1..%, 16.(6....)% compared to 25%	$\frac{7}{24}$	2	M1 for attempting to convert at least 3 fractions to equivalent fractions with the same denominator at least 3 correct A1 for $\frac{7}{24}$ oe OR M1 for attempting to convert at least 2 fractions to decimals or percentages with at least 2 correct rounded or truncated to 2SF A1 for $\frac{7}{24}$ oe Note – the correct answer with less than the required working scores 0 marks
10	(a)		$6p$	1	B1 cao
	(b)		$4m$	1	B1 cao

1380 2F					
Question		Working	Answer	Mark	Notes
11	(a)		3, 15, 75	2	B2 for all 3 correct [B1 for 1 or 2 correct]
	(b)		Straight line from the origin to (100, 150)	2	M1 for a straight line drawn from (0,0) or which when produced would pass through (0,0) A1 for a single line from the origin to (100, 150) tol 1 sq (SC If M0 then B1 for plotting any two points correctly ft table)
	(c)		65 to 68	2	B2 65 – 68 Or M1 for a horizontal line from 100 drawn to meet the graph oe A1 ft tol 1 sq OR M1 for $100 \div 1.50$ A1 for 65 - 68
12	(a)		93	1	B1 cao
	(b)	99 – 90	9	2	M1 for 99 – 90 A1 cao [SC: B1 for '90 to 99' if M0 scored]
	(c)	Sum of the 10 durations $\div$ 10	94.1	2	M1 for $(95+91+98+93+93+90+92+99+97+93)\div 10$ or for the sum of 9 durations $\div$ 10 A1 cao

1380 2F					
Question		Working	Answer	Mark	Notes
13	(a)	$20 \div 4$	5	1	B1 cao
	(b)	$9 \times 3$	27	1	B1 cao
14	(i)		6	3	B1 cao
	(ii)		5		B1 cao
	(iii)		9		B1 cao
15		$5.08 - 1.24 \times 3 = 1.36$ $1.36 \div 2$	£0.68 or 68p	3	M1 for $1.24 \times 3$ or 3.72 oe seen M1 for $(5.08 - '3.72') \div 2$ oe A1 for £0.68 or 68p Accept £0.68p
16			15 6 28 <b>49</b> 8 <b>19</b> 4 <b>31</b> <b>23</b> 25 <b>32</b> 80	3	B3 for a fully correct table [B2 for 3, 4 or 5 correct entries] [B1 for 1 or 2 correct entries]
17		$360 - (62 + 136 + 90) = 360 - 288 = 72$ $180 - 72$	108	3	M1 for $360 - (62 + 136 + 90)$ or 72 seen M1 for $180 - '72'$ A1 cao
18			At least 6 shapes (inc given shape)	2	B2 for at least 6 tessellating shapes ( may inc given shape) with no gaps and no extra isolated shapes drawn [B1 for at least 4 tessellating shapes (may inc given shape) drawn, with no gaps]

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Question		Working	Answer	Mark	Notes
19	(a)	$4.636809\dots \div 3.44$	1.3479(09665...)	2	M1 for $4.63(6809\dots$ or $3.44$ seen or $3\frac{11}{25}$ or $\frac{88}{25}$ A1 for 1.3479(0....
	(b)		1.35	1	B1 ft for 1.35
20		$\frac{3500 \times 2.5 \times 3}{100}$	262.50	3	M2 for $\frac{3500 \times 2.5 \times 3}{100}$ A1 262.50 (Accept 262.5, 262.50p) or M1 for $\frac{3500 \times 2.5}{100}$ oe M1 for '87.5' x 3 A1 262.50 (Accept 262.5, 262.50p) A1 262.50 (Accept 262.5, 262.50p)  [SC: B2 for 3762.50 if M0 scored [SC: if M0 then B2 269.12 or 269.11 ] [SC:if M0 then B1 3769.12 or 3769.11]

1380 2F					
Question		Working	Answer	Mark	Notes
21	(a)(i)		1, 2, 3, 5, 6, 10, 15, 30	3	B2 for including all factors (-1 for any extra factors quoted) [B1 for at least 4 correct factors with no extra incorrect ones]
	(ii)		6		B1 cao
	(b)		60	2	M1 for at least 4, 8, 12 and 5, 10, 15 and 6, 12, 18 A1 cao <b>or</b> M1 for $2 \times 2 \times 3 \times 5$ or 2, 2, 3 and 5 identified A1 cao  SC : B1 for any other common multiple of 60

1380 2F					
Question		Working	Answer	Mark	Notes
22	(a)	$2x - 10 + x + 50$ (ext angle of a triangle = sum of int opp angles) OR $180 - (2x - 10 + x + 50) = 140 - 3x$ (sum of the angles in a triangle = 180) $180 - (140 - 3x)$ (sum of the angles on a straight line = 180)	Shown with reasons	3	M1 for $2x - 10 + x + 50$ B1 for 'ext angle of a triangle = sum of int opp angles' A1 for completing the algebra to complete the proof to $y = 3x + 40$ OR M1 for $180 - (2x - 10 + x + 50)$ or $140 - 3x$ seen B1 for 'sum of the angles in a triangle = $180^\circ$ oe <b>and</b> 'sum of the angles on a straight line = $180^\circ$ ' oe A1 for completing the algebra to complete the proof to $y = 3x + 40$
	(b)(i)	$3x = 145 - 40 = 105$ $105 \div 3$	35	4	M1 for $3x = 145 - 40$ A1 cao
	(ii)	$35 + 50 = 85$ $2 \times 35 - 10 = 60$ $180 - 145 = 35$	85		M1 $2 \times '35' - 10$ or ' $35$ ' + 50 or $180 - 145$ or 60 or 85 A1 ft for 85
23		$\frac{6^7}{6^4}$ or $6^1 \times 6^2$ or $\frac{6^5}{6^2}$	$6^3$	2	M1 for $\frac{6^7}{6^4}$ or $6^1 \times 6^2$ or $\frac{6^5}{6^2}$ or $6^{7-4}$ or $6^{5-2}$ or $6 \times 6 \times 6$ A1 cao [SC: B1 for 216 if M0 scored]

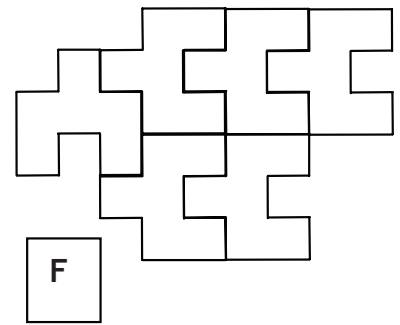
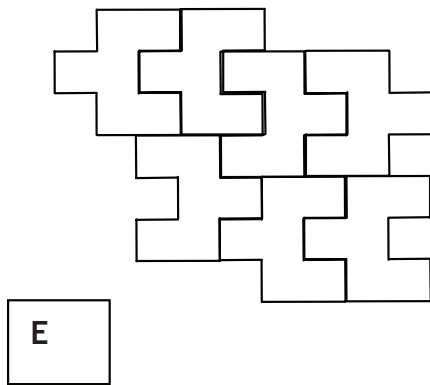
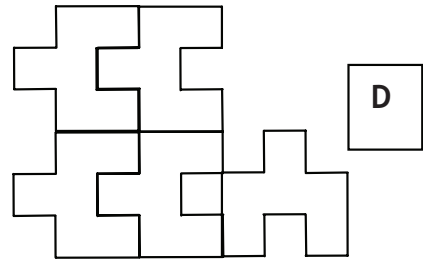
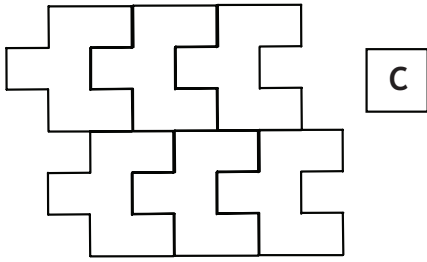
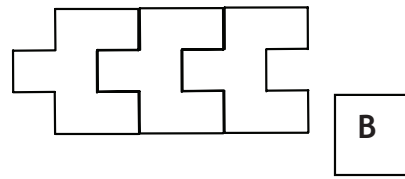
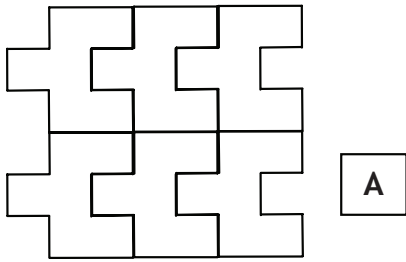


1380 2F					
Question		Working	Answer	Mark	Notes
24	(a)		-2, -1, 0, 1, 2, 3, 4	2	B2 for 7 correct integers [-1 for each incorrect integer] [B1 for 6 correct integers and none incorrect]
	(b)	$x(x-3) + 5(x-3)$ $= x^2 - 3x + 5x - 15$ OR $\begin{array}{r rr} \times & x & +5 \\ x & x^2 & 5x \\ -3 & -3x & -15 \end{array}$	$x^2 + 2x - 15$	2	M1 for $x(x-3) + 5(x-3)$ or $x(x+5) - 3(x+5)$ or 3 correct terms out of 4 from $x^2 - 3x + 5x - 15$ or the 4 terms $x^2, 3x, 5x, 15$ (irrespective of sign) A1 for $x^2 + 2x - 15$
25	(a)	$140 \times 1.12$  Or $\frac{12}{100} \times 140$ $140 + '16.80'$	156.80	3	M2 for $140 \times 1.12$ oe A1 156.80 ( Accept 156.8, 156.80p, 156.8p) Or M1 for $\frac{12}{100} \times 140$ M1 (dep) $140 + '16.80'$ A1 156.80 ( Accept 156.8, 156.80p, 156.8p) Or M1 for a build up method with correct figures M1 $140 + 16.8(0)$ A1 156.80 ( Accept 156.8, 156.80p, 156.8p))
	(b)(i)		10.5	2	B1 cao
	(ii)			11.5	

1380 2F					
Question		Working	Answer	Mark	Notes
26		$2800 \div (13 + 12 + 10) = 80\text{p / share}$ $80 \times 12 = 960$ $960 \times \frac{2}{3}$	6.40	4	M1 for $2800 \div (13 + 12 + 10)$ or $28 \div (13 + 12 + 10)$ M1 for '80' $\times 12 (=960)$ or '0.80' $\times 12(=9.6(0))$ or 10.40, 1040, or $\frac{12}{35} \times 28$ or $\frac{12}{35} \times 2800$  M1 (indep) for '9.6' $\times \frac{2}{3}$ oe or '960' $\times \frac{2}{3}$ oe  A1 for £6.40 or 640 pence [accept 6.4]  SC : B2 for answer of 10 supported by working
27	(a)		Overlapping boxes Not exhaustive No time period stated	2	1 <sup>st</sup> aspect : no time frame 2 <sup>nd</sup> aspect : overlapping boxes 3 <sup>rd</sup> aspect : not exhaustive boxes ie. no < 1 B2 for 2 aspects (B1 for 1 aspect)
	(b)		Example: "How many hours a day do you listen to music" 0 to3, over 3 to 5, over 5	2	1 <sup>st</sup> aspect : question including time frame and units (or question and time frame and units in response boxes) 2 <sup>nd</sup> aspect : at least 3 boxes - all non-overlapping with discrete values or a range; need not be inclusive of all or a set of at least 3 boxes which are exhaustive for all integer numbers of hours (but which may overlap) B2 for 2 aspects (B1 for 1 aspect)

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Question	Working	Answer	Mark	Notes
28	$12^2 = h^2 + 6^2$ $h = \sqrt{144 - 36} = 10.392$ Area = $\frac{1}{2} \times 6 \times 10.392$	31.18	4	M1 for $12^2 = h^2 + 6^2$ or $12^2 - 6^2$ M1 for $\sqrt{144 - 36}$ (=10.3(92 M1 ( indep) for $0.5 \times 6 \times '10.392'$ A1 for 31.17 to 31.18
29	$(100 \div 12) \times (50 \div 12) = 8 \times 4$ whole CDs	36	2	B2 32, 33, 34, 35 36 Or accept M1 for $(100 \div 12) \times (50 \div 12)$ oe A1 32 Or accept B1 44

Examples of tessellation



A – 2 marks

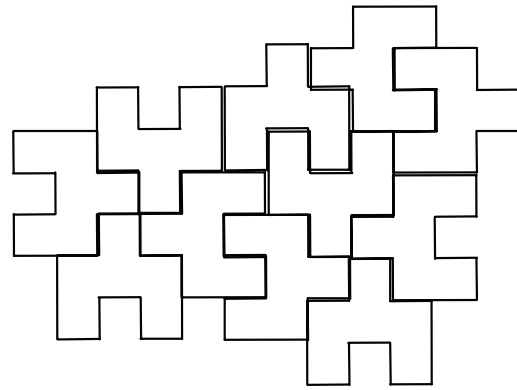
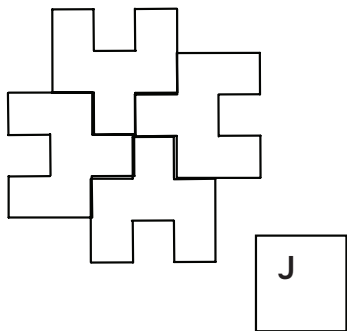
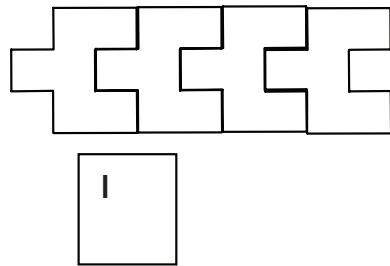
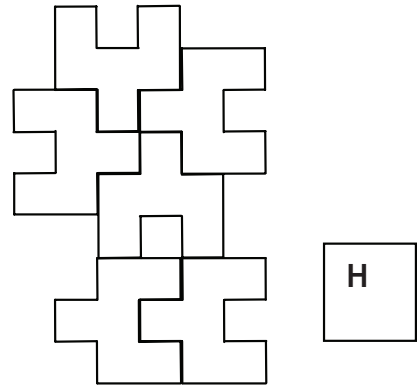
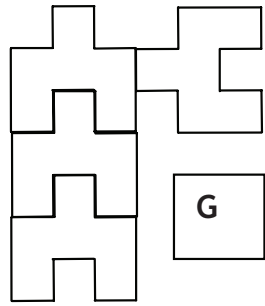
B – 0 marks

C – 2 marks

D – 1 mark

E – 2 marks

F – 1 mark, as it does not show how it would tessellate



G – 0 marks

H – 1 mark

I – 1 mark

J – 1 mark

The figure on the right shows a less obvious tessellation and justifies/explains the inclusion of J