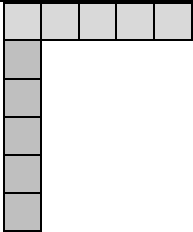


Question	Working	Answer	Mark	Notes	
1	$\times 1000 (= 1000)$	$\div 1000 (= 0.03)$		3	M1
	$\div 30 (= 33.3\dots)$	$\div '0.03' (= 33.3\dots)$			M1
			33		A1 SC B2 for 33.3..... or 34
					Total 3 marks
2	(a)	16 : 40 or 8 : 20 or 4 : 10		2	M1 for any correct cancelling or 5 : 2
			2 : 5		A1 cao
	(b)		$\frac{5}{12}$	1	B1
					Total 3 marks
3		240 \div 3 (= 80) or 240 \div 3 \times 2 (= 160)		4	M1 for finding the number of large ice creams or small ice creams
		'80' \times 3.8 (= 304)			M1 for finding the cost of large ice creams
		(640 - '304') \div '160'			M1 for a complete method to find the cost of a small ice cream
			2.1(0)		A1
					Total 4 marks

4	<p>A: $0.6 \times (2 \times 80)$ (= 96) B: 0.6×80 (= 48) C: 0.55×80 (= 44) D: $(0.6 - 0.55) \times 80$ (= 4)</p>		4	<p>M2 for two compatible values: AC or BC or BD or $2 \times 60 - 55$ (= 65%) If not M2 then award M1 for any one of A or B or C or D</p>
	E.g. '96' - '44' or $48 + (48 - 44)$ or $48 + '4'$ or ' 0.65 ' $\times 80$			M1 for a complete method
		52		A1
				Total 4 marks

5	(a)(i)			38	1	B1
	(ii)			<u>Angles in a triangle</u> sum to 180°	1	B1 Allow Angles in a <u>triangle</u> sum to <u>180°</u>
	(b)	Quad <i>ABDE</i> $360 - 78 - 90 - 17 - (a)(i)$ (360 - 223)	Line and quad <i>ACDE</i> $360 - 90 - 78 - (180 - 125)$ $360 - 90 - 78 - '55'$		3	M1 ft from (ai)
				137		A1
				Reason(s)		B1 for full reasons E.g. <u>Angles</u> in a <u>quadrilateral</u> sum to 360° (accept Angles in a <u>quadrilateral</u> sum to <u>360°</u>) OR <u>Angles</u> on a straight <u>line</u> sum to 180° (accept Angles on a <u>straight line</u> sum to <u>180°</u>) and <u>Angles</u> in a <u>quadrilateral</u> sum to 360° (accept Angles in a <u>quadrilateral</u> sum to <u>360°</u>) Accept 4 sided shape for quadrilateral
						Total 5 marks

6		E.g. $12 \times 9 (=108)$ or $(9 - 6) \times x (= 3x)$		4	M1 for one correct relevant area
		E.g. $129 - '108' (= 21)$ or $'108' + '3x' = 129$ or			M1 dep on M1 for 129 used correctly with another area or for a correct equation (ft) with bracket(s) expanded
		E.g. $'21' \div (9 - 6)$ or $x = \frac{129 - '108'}{3}$			M1 for a complete method
			7		A1
					Total 4 marks

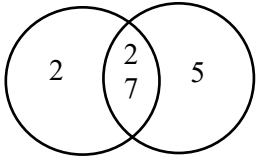
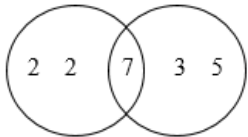
7	(a)		pattern 4 drawn	1	B1
	(b)		10, 12	1	B1
	(c)	14, 16, 18, 20, 22, 24, 26, 28, 30, 32 or $2 \times 30 + 2$ or $12 + (25 \times 2)$ or $4 + (29 \times 2)$ or 31×2 or uses or states $2n + 2$		2	M1 for adding 2 and continuing to at least pattern 15 (allow one error) or for a correct diagram or any correct method which would lead to 62
			62		A1
	(d)	E.g. n th term is $2n + 2$ oe or gives a counter example e.g. when $n = 1$, $2n$ gives 2 (not 4)	No with reason	1	B1 oe
					Total 5 marks

8	(a)		$3 < w \leq 4$	1	B1
	(b)	$(12 \times 2.5) + (16 \times 3.5) + (9 \times 4.5) +$ $(2 \times 5.5) + (1 \times 6.5)$ or $30 + 56 + 40.5 + 11 + 6.5 (= 144)$		4	M2 for at least 4 correct products added (need not be evaluated) or If not M2 then award M1 for consistent use of value within interval (including end points) for at least 4 products which must be added or correct midpoints used for at least 4 products and not added
		$[(12 \times 2.5) + (16 \times 3.5) + (9 \times 4.5) +$ $(2 \times 5.5) + (1 \times 6.5)] \div 40$ or '144' $\div 40$			M1 dep on at least M1 Allow division by their Σf provided addition or total under column seen
			3.6		A1 oe
	(c)	$\frac{2}{40} + \frac{1}{40}$		2	M1 for $\frac{a}{40}$ where $0 < a < 40$ or $\frac{3}{b}$ where $b > 3$ where a and b are integers
			$\frac{3}{40}$		A1 0.075 oe
					Total 7 marks

9	(a)		310	1	B1 for 308 – 312
	(b)	[8.3, 8.7]		4	B1 for 8.3 – 8.7
		'[8.3, 8.7]' × 20 (= '[166,174]')	24 ÷ 20 (=1.2)		M1
		'[166, 174]' ÷ 24 ([6.9....., 7.3])	'[8.3, 8.7]' ÷ '1.2' ([6.9....., 7.3])		M1
				7	A1
					Total 5 marks

10	(a)	$\frac{16}{40} \times 360$ oe or $\left(\frac{16}{40} \times 100\right) \frac{40}{100} \times 360$ oe or $360 \div (40 \div 16)$		2	M1 Allow two stages e.g. $\left(\frac{16}{40} \times 100 \text{ and } \frac{40}{100} \times 360$ oe
			144		A1 cao
	(b)	E.g. $48 \div 192 \times 56$ oe or $\left(\frac{48}{192} \times 100 = 25\right) \frac{25}{100} \times 56$ oe or $(192 \div 48 (= 4) \text{ and } 56 \div 4)$ or $192 \div 56 (= 3.4\dots) \text{ and } 48 \div 3.4\dots$			2
			14		A1 cao
					Total 4 marks

11	e.g. $36 \times 50 (= 1800)$			M1 for calculating outgoings could work in £ or p throughout
	e.g. $36 \times \frac{1}{2} \times 60 (= 1080)$ or $36 \times \frac{1}{3} \times 40 (= 480)$ or $36 \times \left(1 - \frac{1}{2} - \frac{1}{3}\right) \times 25 (= 150)$			M1 for working out one source of income
	e.g. $36 \times \frac{1}{2} \times 60 + 36 \times \frac{1}{3} \times 40 + 36 \times \left(1 - \frac{1}{2} - \frac{1}{3}\right) \times 25 (= 1710)$			M1 for complete method to find the total income
	e.g. $\frac{"1800" - "1710"}{"1800"} \times 100$ or $\frac{[\text{outgoings}] - [\text{income}]}{[\text{outgoings}]} \times 100$			M1 (dep on first 2 method marks) complete method to find percentage loss
		5	5	A1 accept -5
				Total 5 marks

12	(a)	<p>1, 2, 4, 7, 14, 28 and 1, 2, 5, 7, 10, 14, 35, 70</p> <p>or</p> <p>$2 \times 2 \times 7$ and $2 \times 5 \times 7$</p> <p>or</p> 		2	<p>M1 for starting to list at least four factors of each number</p> <p>or 2, 2, 7 and 2, 5, 7 seen (may be in a factor tree and ignore 1)</p> <p>or a fully correct Venn diagram</p>
			14		A1 cao
	(b)	<p>28, 56, 84, 112... and 105, 210, 315, 420...</p> <p>or</p> <p>2, 2, 7 and 3, 5, 7</p> <p>or</p>  <p>or $\frac{28 \times 105}{7}$ or 2, 2, 3, 5, 7 oe</p>		2	<p>M1 for any correct valid method e.g.</p> <p>for starting to list at least four multiples of each number</p> <p>or 2, 2, 7 and 3, 5, 7 seen (may be in a factor tree and ignore 1)</p> <p>or a fully correct Venn diagram</p>
			420		A1 cao
Total 4 marks					

13		$120 \div (3 + 5) (= 15)$		6	M1	M2 for $\frac{3}{8} \times 120 (= 45)$ or $\frac{5}{8} \times 120 (= 75)$ oe
		'15' \times 3 (= 45) or '15' \times 5 (= 75)			M1	
		'45' \div 3 (= 15) or '45' \div 3 \times 2 (= 30)			M1	
		'75' \times $\frac{16}{25}$ (= 48) or '75' \times $\frac{9}{25}$ (= 27)			M1	
		E.g. ('45' \div 3 \times 2) + ('75' \times $\frac{9}{25}$) oe or '27' + '30' or ('75' - '48') + ('45' - '15')			M1 for a complete method	
			57		A1	
						Total 6 marks

14	(a)		0.000 78	1	B1	
	(b)	22 500 000 oe e.g. 22.5×10^6 or 2.25×10^n $n \neq 7$		2	M1	
			2.25×10^7		A1	
						Total 3 marks

15	e.g. $36 \div (2 + 6) (= 4.5)$ or $36 \div \frac{2+6}{3+2+6} (= 49.5)$ oe or Asha = £9 OR Julie = £27			M1
	e.g. $3 \times "4.5"$ or $"49.5" \times \frac{3}{3+2+6}$ or $"9" \times \frac{3}{2}$ or $"27" \times \frac{3}{6}$			M1 or an answer of $\frac{27}{2}$
		13.5(0)	3	A1 SCB1 for $36/5 \times 6 (=43.2)$ or $36/9 \times 2 (=8)$
Total 3 marks				

16	$30 = \frac{27}{1.2x}$		3	M2 M1 for $\frac{27}{1.2x}$
		0.75		A1 oe
Total 3 marks				

17	(a)	$\frac{5+13}{2}$ or $\frac{-4+1}{2}$		2	M1 for a correct method to find one coordinate or for one coordinate correct or for $(-1.5, 9)$
			$(9, -1.5)$		A1 Accept $(9, -\frac{3}{2})$
	(b)		-3	1	B1
	(c)		No with reason	1	B1 No (oe) and e.g. line goes through $(100, -298)$ or $(101.3..), -302)$ or $(\frac{304}{3}, -302)$ or $(3 \times 100) - 302 = -2$ not (+)2
Total 4 marks					

18		$\cos 63 = \frac{24.3}{(PQ)}$ or $\sin 27 = \frac{24.3}{(PQ)}$ or $\frac{(PQ)}{\sin 90} = \frac{24.3}{\sin 27}$ or $\frac{\sin 90}{(PQ)} = \frac{\sin 27}{24.3}$ oe		3	M1 for a correct trigonometric ratio	M2 for $(RQ =) 24.3 \times \tan 63 (= 47.6914..)$ oe and $(PQ =) \sqrt{47.6914^2 + 24.3^2}$ oe
		$(PQ =) \frac{24.3}{\cos 63}$ or $(PQ =) \frac{24.3}{\sin 27}$ or $(PQ) = \frac{24.3}{\sin 27} \times \sin 90$			M1 for a correct rearrangement for PQ	
			53.5		A1 Accept 53.5 - 53.53	
						Total 3 marks

19	e.g. $6(x - 1) (= 6x - 6)$				M1 method to find expression for perimeter of hexagon
	e.g. $2(x + 5) + 2x - 3 (= 4x + 7)$				M1 method to find expression for perimeter of triangle
	“ $6x - 6$ ” = “ $4x + 7$ ”				M1 (dep on at least M1) for equating both expressions
	e.g. $6x - 4x = 7 + 6$				M1 (dep on previous M1 and equation of the form $ax + b = cx + d$) for rearranging the x terms on one side and the numerical terms on the other and all expansions correct.
		5.5	5	A1 oe (dep on M2)	
Total 5 marks					

Qn	Paper	Question	Skill tested	Max score	Mean %	Edexcel averages: scores of candidates who achieved grade:						
						ALL	5	4	3	2	1	U
1	1F	Q03b	Measures	3	73	2.18	2.80	2.58	2.29	1.77	1.08	0.49
2	1F	Q10	Fractions	3	71	2.12	2.73	2.56	2.29	1.78	0.76	0.13
3	1F	Q09	Applying number	4	64	2.57	3.72	3.41	2.75	1.56	0.55	0.10
4	1F	Q12	Percentages	4	58	2.33	3.60	3.12	2.46	1.27	0.34	0.09
5	1F	Q07	Geometrical reasoning	5	61	3.03	4.36	3.87	3.16	2.06	0.85	0.22
6	1F	Q16	Mensuration of 2D shapes	4	51	2.02	3.80	2.97	1.75	0.65	0.24	0.09
7	1F	Q04	Sequences	5	66	3.31	4.31	3.68	3.27	2.72	2.30	1.54
8	1F	Q17	Probability	7	49	3.46	5.95	4.87	3.25	1.61	0.40	0.04
9	1F	Q13	Measures	5	50	2.51	3.90	3.26	2.52	1.60	0.59	0.10
10	1F	Q11	Graphical representation of data	4	46	1.82	3.42	2.51	1.68	0.67	0.15	0.00
11	1FR	Q12	Fractions	5	56	2.79	4.09	3.00	2.26	2.08	0.62	0.33
12	1F	Q15	Applying number	4	46	1.85	2.96	2.36	1.81	1.10	0.54	0.04
13	1F	Q18	Ratio and proportion	6	38	2.28	4.77	3.37	1.86	0.50	0.05	0.07
14	1F	Q20	Standard form	3	42	1.26	2.20	1.67	1.15	0.63	0.28	0.09
15	1FR	Q14	Ratio and proportion	3	43	1.28	2.37	1.37	0.72	0.85	0.00	0.00
16	2FR	Q23	Measures	3	38	1.15	2.54	1.17	0.49	0.22	0.00	0.00
17	1F	Q14	Graphs	4	19	0.75	1.65	0.92	0.56	0.28	0.11	0.03
18	1F	Q22	Trigonometry and Pythagoras' Theorem	3	19	0.56	1.63	0.68	0.27	0.05	0.02	0.03
19	1FR	Q24	Linear equations	5	20	1.01	2.70	0.85	0.32	0.00	0.00	0.00
				80	48	38.28	63.50	48.22	34.86	21.40	8.88	3.39

Suggested grade boundaries

Grade	5	4	3	2	1
Mark	50	41	28	15	6