Unit 3 Foundation Tier: Number, Algebra, Geometry 2

5MB3F					
Question		**Working**	**Answer**	**Mark**	**Additional Guidance**
1.	(a)		Regular hexagon	1	B1 (accept hexagon)
	(b)		C	1	B1 cao
			D and G	1	B1 for both, in any order
					Total for Question: 3 marks
2.		(3 + 2) × 48 = 240 240 – 35	215	3	M1 for attempt to find total number of bags of crisps M1 for attempt to subtract 25 A1 cao 3
					Total for Question: 3 marks
3. **FE**			4.0 m ± 0.1 m	4	M2 for drawing a right angled triangle (M1 for a sketch of a right angled triangle) M1 for drawing an angle of 72º ± 2º A1 for answer of 4.0 m ± 0.1 m
					Total for Question: 4 marks
4. **QWC (i, ii, iii)** **FE**		10 × £5.99 = £59.90 10 × 120 – 80 = 40 80 × £0.99 = £79.20 40 × £0.75 = £30 £79.20 + £30 – £59.90 **OR** 5.99 ÷ 12 = 50p (approx) 10 × 12 – 80 = 40 80 × (“99 – 50”)= £39.20 40 × (“75 – 50”) = £10	£49.30 profit	5	M1 for attempt to find original cost of water M1 for attempt to find cost of sale of first 80 bottles M1 for attempt to find number of remaining bottles 10 × 12 – 80 oe M1 for attempt to find cost of cost of sale of remaining bottles A1 cao **QWC: Decision must be stated with clear working attributed correctly** **OR** M1 for 5.99 ÷ 12 = approx 50p M1 for attempt to find profit on sale of first 80 bottles M1 for attempt to find number of remaining bottles M1 for attempt to find profit on sale of remaining bottles A1 cao **QWC: Decision must be stated with clear working attributed correctly**
					Total for Question: 5 marks

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Question		**Working**	**Answer**	**Mark**	**Additional Guidance**
5.	(a)		Correct reflection	1	B1 cao
	(b)		Rotation 180° centre (–0.5, 1)	2	B2 for all 3 attributes B1 for any two of the three attributes
					Total for Question: 3 marks
6.	(a)	64 × 75m = 4800m 4800 ÷ 1000	4.8 km	3	M1 for 64 × 75 M1 for "64 × 75" ÷ 1000 A1 cao
	(b)	Vol = 25 × 10 × 2.5= 625m^3 625 × 1000	625 000	3	M1 for attempt at finding the volume M1 for attempt to find the number of *l* in 1m^3 or 1m^3 = 1000*l* A1 cao
					Total for Question: 6 marks
7.	(a)	32 × £5.20	£166.40	2	M1 for 32 × £5.20 A1 cao
	(b)	£172.50 ÷ £5.75	30 hours	2	M1 for 172.50 ÷ 5.75 A1 cao
					Total for Question: 4 marks
8. **FE**		Days 3rd Apr to 30th Jun is 28 + 31 + 30 = 89 days Cost of days ="89" × 15.07p = £13.41 Units used 10625 – 8963 = 1662 Cost of units = 1662 × 11.85 = £196.95 196.95 + 13.41	£210.36	6	M1 for attempt to find the number of days M1 for standing charge = "89" × 15.07p M1 for attempt to find the number of units used M1 for attempt to find cost of units "1662" × 11.85p A1 for standing charge = "13.41" or unit cost = £196.95 A1 for £210.36 cao
					Total for Question: 6 marks

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Question		**Working**	**Answer**	**Mark**	**Additional Guidance**
9.			Correct tessellation	2	M1 for extra hexagons in vertical plane or at points in horizontal plane or 1 hexagon meets another on a diagonal plane A1 for at least 6 hexagons tessellating correctly
					Total for Question: 2 marks
10.	(a)		3	1	B1 cao
	(b)		18	1	B1 cao
					Total for Question: 2 marks
11.		$220 - 120$ $\frac{100}{220}$	$\frac{5}{11}$	2	M1 for $\frac{220-120}{220}$ oe A1 cao **OR** M1 for $1 - \frac{120}{220}$ $(=\frac{100}{220})$ A1 cao
					Total for Question: 2 marks

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Question		**Working**	**Answer**	**Mark**	**Additional Guidance**
12.			Correct front elevation	3	B1 for rectangle of width 3 cm B1 for rectangle of height 4 cm B1 for hidden line shown dotted
					Total for Question: 3 marks
13. **QWC (ii, iii)** **FE**		For 100 units: N Eastern = £30 Pacific = £20 East Anglian = £20 For 200 units: N Eastern = £30 Pacific = £40 East Anglian = £30 **OR** Graphs plotted correctly	Correct conclusion with justifying working	5	B1 for calculating 2 correct points for Pacific M1 for attempt find 2 correct points on East Anglian A1 for two correct points on East Anglian M1 for calculating a point that allows a comparison to be made between 100 and 200 units C1 for correct conclusion **QWC: Decision must be stated, and all comments should be clear and follow through from working out**
					Total for Question: 5 marks
14. **QWC (ii, iii)** **FE**		$280 \times 0.175 + 280$ (= 329) $420 \div 4$ (= 315) $50 + 10 \times 27$ (= 320)	£315, Electrics	6	M1 for $50 + 10 \times 27$ M1 for $\frac{1}{4} \times 420$ or $420 \div 4$ oe M1 for $280 \times 0.175 + 280$ or 280×1.175 oe A2 for 320, 315 and 329 (A1 for any 2 correct of 320, 315 and 329) C1(dep on M2 A2) for 'Electrics' as final answer **QWC: Decision must be stated, with all calculations attributable**
					Total for Question: 6 marks
15.		$2(3x + 2x + 7) = 22$ **OR** $3x + 2x + 7 + x + x + 2x + x + 7 = 22$ $10x + 14 = 22$ $10x = 8$ $x = 0.8$ Area = $2.4 \times 8.6 - 1.6 \times 0.8$ **OR** $0.8 \times 08 + 2.4 \times 7.8$	19.36 cm^2	5	M1 for attempt to find an expression of the perimeter A1 for $10x + 14 = 22$ A1 for $x = 0.8$ M1 for attempt to find area A1 for 19.36
					Total for Question: 5 marks

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16.			4.08	3	B1 for 5.6644 or 81.8535(2772…) or 76.1(8912772…) or 18.67 B1 for 4.08(0831694) B1 cao
					Total for Question: 3 marks
17.		20% of £37 400 = £7480 50 000 – 37 400 – 6500 = £6100 40% of 6100 = £2440 (“7480” + “2440”) ÷ 12	£826.67	5	M1 for attempt to find 20% of £37 400 M1 for attempt to find how much is taxed at 40% 50 000 – 37 400 – 6500 M1 for attempt to find 40% of “6100” M1 for monthly tax bill is (“7480” + “2440”) ÷ 12 A1 for £826.67 cao
					Total for Question: 5 marks
18.		1189 ÷ 200 or 891 ÷ 200 = 5 and 4 or 20 squares $200^2 \div 2$ $= \sqrt{(200^2 \div 2)}$ = 141.4 Realising that another row of squares of side 141.4 fits or 891 ÷ 141.4 = 5 squares	90	5	M1 for attempt to divide 1189 ÷ 200 or 891 ÷ 200 M1 for $200^2 \div 2$ M1 for $\sqrt{(200^2 \div 2)}$ M1 for realising that another row of squares of side 141.4 fits or 891 ÷ 141.4 A1 cao for 90 triangles
					Total for Question: 5 marks
19.	(a)	$3 \times 5 + 2 \times (-4)^2$ $15 + 2 \times 16$ $15 + 32$	47	2	M1 for $3 \times 5 + 2 \times (-4)^2$ A1 for 47
	(b)	$P - 2b^2 = 3a$ $a = (P - 2b^2) \div 3$	$a = \frac{P - 2b^2}{3}$	2	M1 for $P - 2b^2 = 3a$ A1 cao
					Total for Question: 4 marks

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Question		**Working**	**Answer**	**Mark**	**Additional Guidance**
20.	(a)		–3, –2, –1, 0, 1	2	B2 for –3, –2,-1, 0, 1 (B1 for –2, –1, 0, 1 or –2, –1, 0, 1, 2)
	(b)		$-1 < x \leq 3$	2	B2 for $-1 < x \leq 3$ (B1 for $-1 \leq x \leq 3$ or $-1 < x < 3$
					Total for Question: 4 marks