Unit 1 Foundation Tier
Mark scheme

Apart from where the mark scheme states otherwise, the correct answer, unless clearly obtained by an incorrect method, should be taken to imply a correct method.

Question	Working	Answer	Mark	Notes
1 (a)		Gaziantep	1	B1
(b)		Two thousand, five hundred and thirty four	1	B1
(c)		2350	1	B1 cao
(d)		608	1	B1 Accept −608
(e)		4	1	B1 cao
				Total 5 marks

Question	Working	Answer	Mark	Notes
2 (a)(i)		C	1	B1 cao
(ii)		A	1	B1 cao
(b)		Correct reason	1	B1 eg for probability cannot be more than 1 oe It adds to 1 oe It has to be below 1 oe Scale goes to 1 oe
				Total 3 marks

Question	Working	Answer	Mark	Notes
3 (a)		30	1	B1
(b)		0.29	1	B1
(c)		0.85	1	B1
(d)		−9, −7, −3, 8, 16	1	B1
(e)		0.009, 0.04, 0.044, 0.104, 0.2	1	B1 extra zeros at the end are fine **and** the numbers may be separated by any signs eg < **or** , etc
(f)	$1-\frac{3}{10}\left(=\frac{7}{10}\right)$ oe **or** $\frac{3}{10}\times 400\,(=120)$ oe		2	M1 **or** use of $\frac{7}{10}$ eg $\frac{400}{10}\times 7$
	Correct answer scores full marks (unless from obvious incorrect working).	280		A1 cao
				Total 7 marks

Question	Working	Answer	Mark	Notes
4 (a)(i)		6 **or** 8	1	B1 allow 6 **and** 8
(ii)		27	1	B1 cao
(iii)		25	1	B1 cao
(iv)		3 **or** 7 **or** 11	1	B1 allow two **or** more of 3, 7, 11
(b)	$(2^2 + 5) \times (2 + 3^2) = 99$	Two correct pairs of brackets	1	B1 cao
				Total 5 marks

Question	Working	Answer	Mark	Notes
5 (a)	9.02 + 21.90		2	M1
	Correct answer scores full marks (unless from obvious incorrect working)	30.92		A1
(b)	9.02 + 15.85 (= 24.87) **or** 33.89 – 9.02 (= 24.87) **or** 33.89 – 15.85 (= 18.04)		3	M1 allow for one correct **and** any incorrect cost added **and** then the total subtracted from 33.89 **or** 9.02 **or** 15.85 subtracted from 33.89 after subtraction of an incorrect cost
	33.89 – "24.87" (= 9.02) **or** 33.89 – 15.85 – 9.02 (= 9.02)			M1 a fully correct method to find the cost of the 3rd parcel
	Correct answer scores full marks (unless from obvious incorrect working).	2		A1 cao must come from correct working eg 9.02 from clear method If no marks awarded, SCB1 for any 2 costs from table subtracted from 33.89
				Total 5 marks

Question	Working	Answer	Mark	Notes
6 (a)	<table><tr><td></td><td>1</td><td>2</td><td>3</td></tr><tr><td>2</td><td>3</td><td>**4**</td><td>**5**</td></tr><tr><td>4</td><td>**5**</td><td>**6**</td><td>7</td></tr><tr><td>6</td><td>7</td><td>**8**</td><td>**9**</td></tr><tr><td>8</td><td>**9**</td><td>10</td><td>**11**</td></tr><tr><td>10</td><td>**11**</td><td>12</td><td>**13**</td></tr></table>		2	B2 For all 10 entries correct in table (B1 for 6, 7, 8 **or** 9 correct entries)
(b)(i)		$\frac{10}{15}$	1	B1 ft oe eg $\frac{2}{3}$ **or** 0.66, 0.67, 0.666, 0.667 etc
(ii)		$\frac{8}{15}$	1	B1 ft 0.53(333…) (SC B1 (marks in (ii)) if both parts using "correct values" but incorrect probability notation eg 10 : 15, 8 : 15)
				Total 4 marks

Question	Working	Answer	Mark	Notes
7	(Area of kite =) 12		3	B1 for a correct area of the kite – may be implied by their diagram
				M1 for any rectangle
	Correct answer scores full marks (unless from obvious incorrect working).			A1 ft for a correct rectangle **or** ft for a rectangle with their stated area of the kite
				Total 3 marks

Question		Working	Answer	Mark	Notes
8	(a)		$7g - 2e$	2	B2 **or** –2e + 7g If not B2 then award B1 for 7g **or** −2e
	(b)	3 × 12 (= 36) **and** 5 × 4 (= 20)		2	M1
			16		A1 SC B1 for an answer of 56 **or** –16
	(c)	$4p = 24 - 9$ **or** oe $4p = 15$ oe **or** $p + \frac{9}{4} = \frac{24}{4}$ oe **or** $(24 - 9) \div 4$ *or* $15 \div 4$		2	M1 for a correct first step **or** for a calculation for p
		Correct answer scores full marks (unless from obvious incorrect working).	$\frac{15}{4}$		A1 oe eg 3.75 **or** $3\frac{3}{4}$
					Total 6 marks

Question		Working	Answer	Mark	Notes
9	(a)		$\frac{7}{20}$	1	B1 oe
	(b)	$\frac{2+6}{20}$ oe **or** $1 - \frac{5+7}{20}$ oe		2	M1 ft their (i)
		Correct answer scores full marks (unless from obvious incorrect working).	$\frac{8}{20}$		A1 oe penalise incorrect notation only once
					Total 3 marks

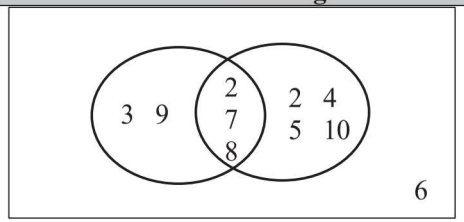
Question	Working	Answer	Mark	Notes
10	$9.2 \times \frac{500}{1000}$ **or** 9.2 ÷ 2 (= 4.6) oe		4	M1 for a method to find the cost of 500g of Cheddar
	6.3 – "4.6" (= 1.7)			M1 for a method to find the cost of 200g of Stilton
	$1.7 \times \frac{1000}{200}$ **or** "1.7" × 5 oe			M1 for a complete method to find the cost of 1kg of Stilton
	Correct answer scores full marks (unless from obvious incorrect working).	8.5(0)		A1
				Total 4 marks

Question	Working	Answer	Mark	Notes
11	1342 ÷ 11(=122) **or** 125 × 11 (=1375)		3	M1
	125 – "122" (=3) **or** "1375" – 1342(=33)			M1
	Correct answer scores full marks (unless from obvious incorrect working).	3 euros **or** 33 (Swedish) Krona		A1 Answer **must** have correct units which may be shortened eg € **or** SK **or** krona
				Total 3 marks

Question	Working	Answer	Mark	Notes
12	angle *ABE* = 73 **or** angle *BEF* = 73 **or** angle *GEF* = 180 – 73 (=107) **or** angle *DEB* = 180 – 73 (=107) **or** 360 – 73 – 124 **or** 180 – (124 – "107")		4	M1 **could be on diagram**
	A correct angle scores 2 marks	163		A1
				B2 **dep on M1 and a complete method** for all reasons appropriate for their method (B1 dep on M1 for one reason appropriate for their method) eg Angles on a straight **line** sum to **180°** **Angles** on a straight **line** sum to 180° **Vertically opposite** angles are equal. Vertically **opposite angles** are equal. **Corresponding** angles are equal. **Alternate** angles are equal **Allied** angles sum to 180° (**or co-interior** angles) Angles at a **point** (**or full turn**) add up to 360° (**or** angles at a point)
				Total 4 marks

Question	Working	Answer	Mark	Notes
13	x −1 0 1 2 3 4 5 y 5 3 1 −1 −3 −5 −7 (−1, 5) (0, 3) (1, 1) (2, −1) (3, −3) (4, −5) (5, −7)	Correct line between $x = -1$ **and** $x = 5$	3	B3 for a correct line between $x = -1$ **and** $x = 5$
				(B2 for a correct straight line segment through at least 3 of (−1, 5) (0, 3) (1, 1) (2, −1) (3, −3) (4, −5) (5, −7) **or** for all of (−1, 5) (0, 3) (1, 1) (2, −1) (3, −3) (4, −5) (5, −7) plotted but not joined)
				(B1 for at least 2 correct points stated (may be in a table) **or** plotted **or** for a line drawn with a negative gradient through (0, 3) **or** for a line with a gradient of −2) Ignore anything outside the range.
				Total 3 marks

Question	Working	Answer	Mark	Notes
14	$\frac{579}{490}$ **or** 1.18163		2	M1 **or** 70.1, 70.07, 70.071, 70.072, 70.0716
	Correct answer scores full marks (unless from obvious incorrect working).	70.07163(265.....)		A1 at least 5 dp truncated **or** rounded
				Total 2 marks

Question	Working	Answer	Mark	Notes
15			3	B3 For all 4 regions of Venn diagram correct (B2 for 2 **or** 3 regions correct, B1 for 1 region correct) numbers must not be repeated in a region
				Total 3 marks

Question	Working	Answer	Mark	Notes
16		2.745	1	B1
				Total 1 mark

Question	Working	Answer	Mark	Notes
17	$\frac{16}{3}-\frac{20}{7}$ **or** $(5)\frac{7}{21}-(2)\frac{18}{21}$ **or** $(5)\frac{7a}{21a}-(2)\frac{18a}{21a}$		3	M1 for correct improper fractions **or** fractional part of numbers written correctly over a common denominator
	$\frac{112}{21}-\frac{60}{21}$ **or** $\frac{112a}{21a}-\frac{60a}{21a}$ **or** $5\frac{7}{21}-2\frac{18}{21}=3-\frac{11}{21}$ oe **or** $5\frac{7}{21}-2\frac{18}{21}=4\frac{28}{11}-2\frac{18}{21}$			M1 for correct fractions with a common denominator with minus sign **or** mixed numbers to the stage shown
	$\frac{112}{21}-\frac{60}{21}=\frac{52}{21}=2\frac{10}{21}$ oe **or** $3-\frac{11}{21}=2\frac{10}{21}$ $5\frac{7}{21}-2\frac{18}{21}=4\frac{28}{11}-2\frac{18}{21}=2\frac{10}{21}$ *Working required*	Shown		A1 Dep on M2 for a correct answer from fully correct working If all 3 fractions turned into improper fractions on the first line $\frac{16}{3}-\frac{20}{7}=\frac{52}{21}$ then the student **clearly** needs to show that the LHS = $\frac{52}{21}$
				Total 3 marks

Question	Working	Answer	Mark	Notes
18	1– (0.26 + 0.18) (= 0.56) oe **or** 0.28 oe **or** $x + x$ = 1– (0.26 + 0.18) oe		4	M1 0.28 oe may be seen in the table
	"0.28" + 0.26 (= 0.54)			M1 adding the two required probabilities
	"0.54" × 250 oe eg "0.28" × 250 + 0.26 × 250			M1 for multiplying the probabilities by 250
	Correct answer scores full marks (unless from obvious incorrect working).	135		A1 cao
				Total 4 marks

Question	Working	Answer	Mark	Notes
19 (a)	$n^2 - 6n + 4n - 24$		2	M1 for any 3 correct terms **or** for 4 out of 4 correct terms ignoring signs **or** for $n^2 - 2n$ … **or** for …$- 2n - 24$
	Correct answer scores full marks (unless from obvious incorrect working).	$n^2 - 2n - 24$		A1 oe
(b)	$8x - 12$ **or** $\frac{3}{4}x - \frac{5}{4}$ oe **or** $0.75x - 1.25$ oe		3	M1 for correct multiplication by 4 **or** separate fractions on the RHS
	$8x - 3x = -5 + 12$ oe **or** $5x = 7$ oe **or** $2x - \frac{3}{4}x = -\frac{5}{4} + 3$ **or** $2x - 0.75x = -1.25 - 3$ oe			M1 ft (dep on 4 terms) for terms in x on one side of equation **and** number terms on the other
	Working required	$\frac{7}{5}$		A1 oe dep on M1 1.4 **or** $1\frac{2}{5}$ oe
				Total 5 marks

Question	Working	Answer	Mark	Notes
20	For sight of 5 hrs 24 mins = 5.4 (hrs) **or** $5\frac{24}{60}\left(=5\frac{2}{5}\right)$ oe **or** 324 (mins)		3	B1
	$3980 \div 5.4$ oe **or** $\frac{3980}{324} \times 60$			M1 For distance ÷ time that should give a speed in km/h (SC allow $3980 \div 5.24$ (= 759.5… **or** 760) for this mark unless mark has been awarded for 324 minutes **or** 5.4 hours oe)
	Correct answer scores full marks (unless from obvious incorrect working).	737		A1 awrt 737 (if no working shown, 738 gets SCB2)
				Total 3 marks

Question	Working	Answer	Mark	Notes
21	28 × 12 (=336) **or** 5 × 12 (= 60) **or** 18 × 12 (= 216) **or** 28 × 20 (=560) **or** $\frac{1}{2}("CD"+"18")"8"$ oe eg 72 +4*CD* [numbers in " " come from correct working] **Check diagram for areas**		4	M1 For a correct method to find the area of a rectangle (may be seen as part calculation) or a correct expression for the area of the trapezium with numb×ers substituted. Allow for other correct method to find area linked to this shape.
	"336" + 0.5("18"+ *CD*)"8" = 434 oe eg 4("18" + *CD*) = 98 **or** eg 0.5("18" + *CD*)"8" = "98" oe eg $\frac{1}{2}("CD"+"18")=12.25$ **or** "560" – 2(0.5(5 + *x*)"8") = 434 oe (where *x* is horizontal from *D* to perp with *AF*) [numbers in " " come from correct working]			M1 correct use of their values from correct working for an equation involving *CD* (*CD* could be labelled with any letter)
	eg $(CD=)\frac{196-144}{8}\left(=\frac{52}{8}\right)$ **or** $(CD=)\frac{98-72}{4}\left(=\frac{26}{4}\right)$ **or** $(CD=)\frac{434+152-560}{4}$ **or** (*CD* =) 2 ×12.25 – 18 **or** 98 × (= 196), "196" ÷ 8 (= 24.5), "24.5" – 18			M1 a correct process to solve a correct equation **or** a correct process to find *CD* using **correct values**
	Correct answer scores full marks (unless from obvious incorrect working).	6.5		A1 oe
				Total 4 marks

Question	Working	Answer	Mark	Notes
22 (a)		8	1	B1
(b)		11	1	B1 accept x^{11}
(c)		$8k^6m^{12}$	2	B2 for all correct B1 for two correct from 8 **or** k^6 **or** m^{12}
				Total 4 marks

Question	Working	Answer	Mark	Notes
23	×1000 (÷60 ÷ 60) **or** ÷3600 **or** sight of 81 000 **or** 1350 **or** 0.0225		3	M1 For one of ×1000 (eg sight of 81 000) **or** (÷60 ÷ 60) **or** ÷3600 oe
	$\frac{81\times1000}{60\times60}$ oe eg $\frac{81}{3.6}$ **or** $81\times\frac{5}{18}$ oe			M1 For a fully correct method with correct use of brackets eg 81000 ÷ 60 × 60 is M1 only if not recovered
	Correct answer scores full marks (unless from obvious incorrect working).	22.5		A1 oe eg $\frac{45}{2}$
				Total 3 marks

Question	Working	Answer	Mark	Notes
24 (a)		$12a^{11}b^7$	2	B2 for fully correct (B1 for 2 correct terms in a product)
(b)		$7x^2y^2(2y^2 + 3x)$	2	B2 (B1 for a correct factorisation with at least 2 terms outside the bracket eg $xy(14xy^3 + 21x^2y)$ **or** for the correct common factor with only one error in the bracket)
(c)		$y = -2x + 4$	2	B2 for $y = -2x + 4$ oe (B1 for $y = -2x + c$ **or** clearly showing the gradient is -2 **or** $y = mx + 4$ **or** $-2x + 4$)
(d)		(0, –5)	1	B1
				Total 7 marks

Question		Working	Answer	Mark	Notes
25	(a)	$\sqrt{7.5^2 - 6^2}$ **or** $(BAC =)\sin^{-1}\left(\frac{6}{7.5}\right)(= 53.1)$ and $\frac{6}{\tan"53.1"}$ **or** $(BCA =)\cos^{-1}\left(\frac{6}{7.5}\right)(= 36.9)$ and $6 \times \tan"36.9"$		2	M1 For a correct method to find *AB*
			4.5		
	(b)	(area *ABC* =) 0.5 × 6 × "4.5" (= 13.5) oe		4	M1 ft their value of *AB*
		(area *ADC* =)31.5 – "13.5"(= 18)			M1 For a method to find area *ADC*
		(*AD* =) ("18" ÷ 7.5) ÷ 0.5 oe			M1 For a complete method to find *AD*
		Correct answer scores full marks (unless from obvious incorrect working).	4.8		A1 cao
					Total 6 marks