1	5.75 ÷ 5 (= 1.15)		3	M1	for finding the cost of one chocolate bar
	e.g. (7.85 – 2 × "1.15") ÷ 3			M1	(dep on M1) for a complete method to find the cost of one packet of sweets
		1.85		A1	cao
					Total 3 marks

2	(36 – 25) × 7.45 oe		3	M2	for a complete method
				(M1	for 36 – 25 (= 11) **or** for W × 7.45 where W is their weight)
		81.95		A1	
					Total 3 marks

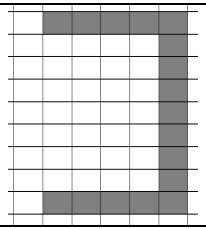
3	(a)					Correct table	3	B3	All 6 correct entries
								(B2	4 or 5 correct entries
								B1	2 or 3 correct entries)
	(b)					$\frac{7}{60}$	1	B1	accept 0.11666... (accept 2 d.p. or better truncated or rounded) or 11.666...% (accept 2 s.f. or better truncated or rounded)
									Total 4 marks

	ramen	**soba**	**udon**	**Total**
Boiled	18	**5**	**8**	31
Fried	**10**	12	7	**29**
Total	**28**	**17**	15	60

4	e.g. 32.50 × 180 (= 5850) **or** e.g. 0.94 × 32.50 oe (= 30.55)		3	M1 for finding the total income **or** 94% of the cost of one ticket
	e.g. 0.94 × "5850" oe **or** "5850" – 0.06 × "5850" oe **or** 180 × "30.55"			M1 for a complete method
		5499		A1
				Total 3 marks

5	6 × 100 (= 600) **or** 17.5 ÷ 100 (= 0.175)		3	B1
	"600" ÷ 17.5 (= 34.28…) **or** 6 ÷ "0.175" (= 34.28…)			M1 ft incorrect conversion
		34		A1 cao
				Total 3 marks

6		3 kg = 3000 g or 150 g = 0.15 kg or 180 g = 0.18 kg or 1350 g = 1.35(0) kg		3	B1 may be seen used as part of a calculation
		3 × 150 + 5 × 180 (= 1350) 3 × 0.15 + 5 × 0.18 (=1.35(0))			M1 Could use their converted values
			1650		A1
					Total 3 marks

7	(a)		Correct shape	1	B1	cao
	(b)		17, 21	1	B1	cao
	(c)		33	1	B1	cao
	(d)		The numbers of shaded squares are odd numbers	1	B1	Accept e.g. 50 is an even number **or** the sequence is all odd numbers **or** 49 is in the sequence so 50 can't be as it's only one more **or** 53 is the next number after 49 **or** 49 and 53 are in the sequence (so not 50) **or** nth term is $4n + 1$ and for 50 $n = 12.25$ / not an integer
						Total 4 marks

8	(b)	15.5×8 (=124) or $15.5 \times 8 \times x$ $15.5 \times 8 \times x = 806$	6.5	3	M1
		806 ÷ "124"			M1 dep
					A1
					Total 3 marks

9		0.5 × (13.5 + 17) × 10.4	158.6	2	M1 for a complete method eg rectangle ±2 triangles
					A1 allow 159
					Total 2 marks

10		11 hours and 45 minutes	2	B2 for 11 hours and 45 minutes (B1 for 11 hours or 45 minutes)
				Total 2 marks

11	e.g. $\frac{180}{750}\times 100$ oe **or** 0.24 × 100		2	M1 for a complete method
		24		A1
				Total 2 marks

12	(a)		13	1	B1
	(b)	160 × 2 (=320)or "160 × 2" – 5 or "160 × 2 – 5" ÷ 3	105	2	M1 One correct inverse operation used
					A1
	(c)		$P=\frac{3n+5}{2}$	2	B2 oe (B1 for $\frac{3n+5}{2}$ oe or $P = 3n + 5 \div 2$ or for P = a formula including n with 2 operations correct eg $P = 3n + 5$ or for $n=\frac{2P-5}{3}$ or $P=\frac{2n-5}{3}$)
					Total 5 marks

13		424 = 4*n*	106	2	M1	For 424 or 324 + 225 –125 with at most one error
					A1	SCB1 for 524 or 674
						Total 2 marks

14	(a)	520 – 465 (= 55) **or** $\frac{520}{465}$(=1.118…)	11.8	3	M1	
		$\frac{"55"}{465}\times 100$ **or** 100 ×(“1.118” – 1) oe			M1	
					A1	11.8 or better (11.827956...)
	(b)	0.12 × 550 (= 66)	484	3	M1 oe	M2 for 0.88 × 550
		550 – “66”			M1	
					A1	
						Total 6 marks

15	e.g. 0.7 × 20 160 oe (= 14 112) **or** 0.3 × 20 160 oe (= 6048)		4	M1	
	e.g. "14 112" ÷ (9 + 5 + 2) (= 882) **or** (20 160 − "6048") ÷ (9 + 5 + 2) (= 882)			M1	M2 for $\frac{9-2}{9+5+2}$ × "14 112" oe
	e.g. 9 × "882" – 2 × "882"			M1	
		6174		A1	
					Total 4 marks

16		438 × 0.12 (= 52.56) **or** 44.39 ÷ 0.92 (= 48.25)		4	M1	
		438 × 0.12 (= 52.56) **and** 44.39 ÷ 0.92 (= 48.25) **or** 438 × 0.12 (= 52.56) **and** "52.56" × 0.92 (=48.355) or 44.39 ÷ 0.92 (= 48.25) **and** "48.25" ÷ 0.12 (= 402.083…)			M1	
		"52.56" – "48.25" **or** "48.355" – 44.39 = 3.965 **and** "3.965" ÷ 0.92 **or** 438 – "402.083…"(= 35.916..) **and** "35.916" × 0.12			M1	Dep on M2
			4.31		A1	
						Total 4 marks

17	e.g. 1.5 × 2.4 – (−5.6) **or** 1.5 × 2.4 + 5.6 **or** 3.6 + 5.6 oe		2	M1 for a correct substitution
		9.2		A1 accept $\frac{46}{5}$ or $9\frac{1}{5}$
				Total 2 marks

18	(a)		$70 < s \leq 80$	1	B1	
	(b)	$10 \times 45 + 16 \times 55 + 19 \times 65 + 23 \times 75 + 12 \times 85$ **or** $450 + 880 + 1235 + 1725 + 1020$ (= 5310)		4	M2	$f \times d$ for at least 4 products with correct mid-interval values and intention to add. If not M2 then award M1 for d used consistently for at least 4 products within interval (including end points) and intention to add **or** for at least 4 correct products with correct mid-interval values with no intention to add
		"5310" ÷ 80			M1	dep on at least M1 allow division by their $\sum f$ provided addition or total under column seen
			66.4		A1	accept 66.37 – 66.4
						Total 5 marks

19		*ABD* = 180 – 143 (= 37) **or** *AEJ* = 76 **or** *CED* = 76 **or** *ECD* = 180 – 143 (= 37)		3	M1	may be marked on diagram
		180 – 76 – "37"			M1	A correct calculation for *EDC*
			67		A1	
						Total 3 marks

20	360 – (59 + 115 + 68) (= 118)		4	M1 angle values may be seen on diagram throughout
		$x = 62$		A1 from correct working
	Angles in a quadrilateral add up to 360. Accept "4-sided shape" Angles on a straight line add to 180° Base angles in an isosceles triangle (are equal)			B2 (dep on M1) for all correct reasons for their method (B1 (dep on M1) for 1 correct reason for their method)
				Total 4 marks

21	6 hrs 39 mins = 6.65 (hrs) or $6\frac{39}{60}$ or $6\frac{13}{20}$ or $\frac{133}{20}$ or 399 (mins)		3	B1	
	Average speed = $\frac{429}{6.65}$ oe eg $\frac{429}{399}\times 60$			M1	Use of $S = D \div T$ (use of their time in hours) [Allow $\frac{429}{6.39}$ if B0 awarded]
		64.5		A1	awrt 64.5
					Total 3 marks

22 (a)	for 0.035 × 40 000 oe (= 1400) **or** 1.035 × 40 000 oe (= 41 400)	**OR**		3	M1	for finding 3.5% **or** 103.5% of 40 000	**OR** M2 for 40 000 × 1.035^3 **or** 40 000 × 1.035^4 (= 45 900.92)
	1.035 × "41 400" oe (= 42 849) 1.035 × "42 849" oe (= 44 348.72)	40 000 × 1.035^3			M1	for completing method to find total amount in the account	(M1 for 40 000 × 1.035^2 (= 42 849))
			44 349		A1	accept 44 348 – 44 349	
						SC: if no other marks gained award M1 for 0.105 × 40 000 oe **or** 4200 **or** 44 200 accept (1 + 0.035) as equivalent to 1.035 throughout	
(b)	e.g. 30 481 ÷ (1 – 0.065) **or** 30 481 ÷ 0.935			3	M2	for a complete method	
					(M1)	for 30 481 ÷ (100 – 6.5) (= 326) **or** (100 – 6.5)% = 30 481 **or** 93.5% = 30 481 **or** e.g. (1 – 0.065)x = 30 481	
			32 600		A1		
							Total 6 marks

23		$4x + 6x + 11 + 9x - 18 = 126$ oe eg $19x - 7 = 126$ or eg $(126 + 18 - 11) \div 19$		4	M1	A correct equation or a correct calculation for x
		$x = 7$			A1	
		$0.5 \times (9 \times$ "7" $- 18) \times (4 \times$ "7") $(0.5 \times 45 \times 28)$			M1	Dep on M1
			630		A1	cao
						Total 4 marks

Practice Tests Set 16 – Paper 2F-3F mark scheme, performance data and suggested grade boundaries

						Edexcel averages: scores of candidates who achieved grade:						
Qn	**Paper**	**Question**	**Mean score**	**Max score**	**Mean %**	**ALL**	**5**	**4**	**3**	**2**	**1**	**U**
1	1F	Q10	2.54	3	85	2.54	2.89	2.78	2.41	2.00	1.03	0.64
2	1F	Q03	2.62	3	87	2.62	2.88	2.75	2.53	2.32	1.71	0.14
3	1F	Q08	3.39	4	85	3.39	3.80	3.64	3.25	2.81	1.81	0.28
4	1F	Q13b	2.43	3	81	2.43	2.90	2.73	2.27	1.58	0.72	0.21
5	1F	Q06	2.26	3	75	2.26	2.79	2.46	2.09	1.33	0.76	0.07
6	2F	Q08	2.34	3	78	2.34	2.77	2.44	2.21	1.68	0.92	0.00
7	1F	Q05	3.15	4	79	3.15	3.50	3.22	3.01	2.80	2.10	0.64
8	2F	Q14b	1.96	3	65	1.96	2.79	2.25	1.36	0.51	0.25	0.00
9	2F	Q14a	1.25	2	63	1.25	1.75	1.42	0.89	0.35	0.22	0.00
10	1F	Q11	1.31	2	66	1.31	1.67	1.41	1.07	0.81	0.48	0.43
11	1F	Q13a	1.23	2	62	1.23	1.72	1.34	0.97	0.41	0.22	0.14
12	2F	Q05	3.12	5	62	3.12	4.12	3.25	2.58	1.64	0.73	0.11
13	2F	Q07f	1.14	2	57	1.14	1.53	1.26	0.89	0.43	0.35	0.22
14	2F	Q17	3.47	6	58	3.47	4.73	3.75	2.72	1.50	0.64	0.22
15	1F	Q17	2.14	4	54	2.14	3.29	2.40	1.22	0.50	0.17	0.07
16	2F	Q12	2.13	4	53	2.13	2.99	2.26	1.53	0.95	0.40	0.11
17	1F	Q12b	1.09	2	55	1.09	1.59	1.11	0.87	0.40	0.02	0.00
18	1F	Q18	2.56	5	51	2.56	4.03	2.68	1.56	0.50	0.15	0.00
19	2F	Q11	1.48	3	49	1.48	2.34	1.55	0.76	0.29	0.24	0.00
20	1F	Q09	1.66	4	42	1.66	2.66	1.64	0.97	0.46	0.12	0.00
21	2F	Q15	1.33	3	44	1.33	2.10	1.20	0.88	0.42	0.17	0.00
22	1F	Q23	1.82	6	30	1.82	3.27	1.58	0.79	0.29	0.04	0.00
23	2F	Q10	1.14	4	29	1.14	2.45	0.72	0.08	0.04	0.00	0.00
			47.56	**80**		**47.56**	**64.56**	**49.84**	**36.91**	**24.02**	**13.25**	**3.28**

Suggested grade boundaries

Grade	**5**	**4**	**3**	**2**	**1**
Mark	57	43	30	19	8