Practice Tests Set 14 – Paper 2F-3F mark scheme, performance data and suggested grade boundaries

Q	Working	Answer	Mark	Notes
1 (c)		4	1	B1
2 (e)		$12g + 4$	1	B1
3		6.5	1	B1
4		0.003, 0.035, 0.5, 0.539, 0.9	1	B1
5		$5(5f - 2)$	1	B1
6	0.23 × 450 oe		2	M1 or for an answer of 553.5 or 346.5
		103.5		A1
				Total 2 marks

Q		Working	Answer	Mark	Notes
7	a		23	1	B1
	b		Added 4	1	B1 accept +4, 4 more, oe, $4n - 1$ (need to know 4 and we need to add/go up oe)
	c	(23) 27, 31, 35, 39, 43, 47, 51, 55, 59, 63, 67, 71 **OR** $4n - 1 = 70$		2	M1 allow list of numbers going up in 4's up to 71 or more (allow one error)
			71		A1
	d	No and identifying all terms in sequence are odd **OR** No and method to count on as far as 95 (or clearly showing 95) **OR** No and method to find n when term is 96 e.g. solving $4n - 1 = 96$	No with reason	1	B1 must have 'No' oe or 'is not' oe and a reason.
					Total 5 marks

8		13 50	3	B3	For the correct time of 13 50 or 1.50 pm or 1.50 in the afternoon oe (B2 for 1.50 or 1.50 am or stating 2 hours 40 mins or 160 mins or intention to add all 4 times onto 11.10 B1 for intention to add all 4 times together or evidence of intention to add on 2 or 3 times to 11 10)
					Total 3 marks

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Q	Working	Answer	Mark	Notes
9 a	150 ÷ 6 × 14 oe		2	M1
		350		A1
b	630 ÷ 90 × 6 oe		2	M1
		42		A1
10	20 – 2.35 (=17.65)		3	M1
	'17.65' ÷ 0.74 (= 23.8…) **or** 24			M1 A clear attempt to subtract 0.74 23 times
		23		A1
				Total 3 marks
11	$\frac{1}{2} \times 280$ (= 140) oe **or** $\frac{2}{5} \times 280$ (= 112) oe		3	M1
	280 – '140' – '112'			M1
		28		A1

12				Europe	Africa	Asia	Total		B4 for all 12 correct values. If not B4 then award (B3 for 9 or 10 or 11 correct values) (B2 for 6 or 7 or 8 correct values) (B1 for 4 or 5 correct values)
			Male	10	**3**	**16**	**29**		
			Female	**14**	6	11	31		
				24	**9**	27	**60**		
									Total 4 marks

13	162 ÷ (2 + 7) × 2 oe		2	M1
		36		A1
				Total 6 marks

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Q	Working	Answer		Mark	Notes
14 a i		33	1	B1	accept 32 – 34
ii		15	1	B1	accept 15 – 16
b	e.g. 820 ÷ 10 × "33" (= 2706) **or** 2850 ÷ 50 × "15" (= 855)		2	M1	method to convert 820 metres to feet **or** 2850 feet to metres, allow ft from (ai) or (aii) **or** a value for 820 m to feet in range (2620 – 2740) **or** a value for 2850 feet to m in range (830 – 900)
		2850 feet supported by working		A1	2850 selected (could be unambiguously circled, underlined or stated) with correct working and figures as above to justify result, ft from part (ai) or (aii)
					Total 4 marks

Q	Working		Answer	Mark	Notes	
15 a	1.04 × 3 130 000 oe			3	M2	complete method to increase salary by 4% M1 for 0.04 × 3 130 000 oe (= 125 200)
			3 255 200		A1	
b	for 0.15 × 750 000 oe (=112 500) **or** 0.85 × 750 000 oe (637 500)	**OR** 750 000 × 0.85^3		3	M1	For method to find depreciation for 1 year or value after 1 year **OR** M2 for 750 000 × 0.85^3(= 460 593.75) **or** 750 000 × 0.85^4 **(**= 391 504.69)
	0.85 × "637 500" (= 541 875) oe 0.85 × "541 875" (= 460 593.75) oe				M1	for completing method (M1 for 750 000 × 0.85^2 **(**= 541 875)
			460 594		A1	accept 460 593 – 460 594
						SC: if no other marks gained award M1 for 0.55 × 750 000 oe **(**= 412 500) **or** 0.45 × 750 000 oe **(**= 337 500) accept (1 – 0.15) as equivalent to 0.85 throughout
						Total 6 marks

Q	Working	Answer	Mark	Notes
16	e.g. 360 – (30 + 45 + 165) (= 120)		4	M1 method to calculate One Stop Shoes angle
	e.g. $\frac{30}{45}$ ¥ 18 (= 12) or $\frac{30}{120}$ ¥ 48 (= 12)oe			M1 method to calculate ABC Shoes frequency
	e.g. 165 ÷ 45 × 18 (= 66) oe **or** 165 ÷ 30 × "12" (= 66) oe **or** 165 ÷ "120" × 48 (= 66) oe **or** 18 + 48 having shown or implied that 120 + 45 = 165 and a clear intention that this is the method for Superfast Trainers (= 66)			M1 method to calculate Superfast Trainers frequency
		12, 120, 66		A1 fully correct table
				Total 4 marks

17	a		$50 < L \leq 60$	1	B1	oe eg 50 - 60
	b	25 × 6 + 35 × 26 + 45 × 31 + 55 × 40 + 65 × 17 (150 + 910 + 1395 + 2200 + 1105)(= 5760)			M2	For correct products using midpoints (allow one error) with intention to add. M1 for products using frequency and a consistent value within the range (allow one error) with intention to add or correct products using midpoints (allow one error) without addition
		"5760" ÷ "120"			M1	dep on M1
			48	4	A1	
						Total 5 marks

Q	Working	Answer	Mark	Notes
18	eg $\frac{1}{2}\times(20+26)\times12$ (= 276) or $12 \times 20 + \frac{1}{2}\times(26-20)\times12$ (= 276) or $12 \times 26 - \frac{1}{2}\times(26-20)\times12$ (=276)		5	M2 complete method to find the area of the shape M1 for method to find the area of a rectangle 12 × 20 (= 240) or 12 × 26 (=312) or the area of the triangle $\frac{1}{2}\times(26-20)\times12$ (= 36)
	"276" ÷ 20 (= 13.8)			M1 (indep) method to find the number of tins for their area ft any value from a calculation that includes at least two of 20, 26 & 12
	eg 3 × \$40 + 2 × \$13 (= \$146) or 14 × \$13 (= \$182) or 4 × \$40 (= \$160)			M1 method to calculate a cost for their number of tins dep on previous M1 (NB: use n × \$40 where n is the next multiple of 4 greater than the number of tins needed, divided by 4)
		146		A1 cao dep on accurate figures
				Total 5 marks

Q	Working	Answer	Mark	Notes
19	15 × 60 × 60 (= 54 000) oe **or** $\frac{60}{12}$ × 60 × 15 (= 4500) oe **or** 5 × $\frac{60}{12}$ × 60 (= 1500) oe		4	M1 M2 for $\frac{15\times60\times60\times5}{12}$ (= 22 500)
	'54000' ÷ 12 × 5 (= 22 500) oe **or** '4500' × 5 (= 22 500) oe **or** '1500' × 15 (=22 500) oe			M1
	'22 500' × 0.002 oe			M1 dep on M2 for a complete method
		45		A1
				Total 4 marks

20	$\tan x = \frac{3.4}{4.7}$ oe eg $\cos x = \frac{4.7}{\sqrt{3.4^2+4.7^2}}$			M1	or $\sin x = \frac{3.4\sin 90}{\sqrt{3.4^2+4.7^2}}$ oe
	$(x =) \tan^{-1}\left(\frac{3.4}{4.7}\right)$ oe eg $(x =) \cos^{-1}\left(\frac{4.7}{\sqrt{3.4^2+4.7^2}}\right)$			M1	or $(x =)\sin^{-1}\left(\frac{3.4\sin 90}{\sqrt{3.4^2+4.7^2}}\right)$ oe
		35.9	3	A1	accept 35.7 - 36.1
					Total 3 marks

Q	Working	Answer	Mark	Notes
21	E.g. (72 ÷ 3) × 1.34 (= 17.91) **or** 34.5 × 1.34 (= 46.23) **or** 72 ÷ 1.34 (= 53.73) **or** (34.5 × 3) × 1.34 (= 138.69)		4	M1 for converting £ to $ or $ to £
	34.5 – '17.91' (= 16.59) **or** '46.23' – (72 ÷ 3) = (22.23) **or** (34.5 × 3) – '53.73' (= 49.77) **or** '138.69' – 72 (= 66.69)			M1 for profit of 1 pair of jeans or 3 pairs of jeans
	$\frac{'16.59'}{'17.91'}\times 100$ **or** $\frac{'22.23'}{72\div 3}\times 100$ **or** $\frac{'49.77'}{'53.73'}\times 100$ **or** $\frac{'66.69'}{72}\times 100$			M1 for a complete method
		93		A1 for 92.625 – 93
				Total 4 marks
22	$2\times(-6)^2+3\times-2$ **or** $72-6$ **or** $2\times-6\times-6+3\times-2$		2	M1
		66		A1

Q	Working	Answer		Mark	Notes
23	*ADC* = 180 – 58 (= 122) **or** *EDF* = 122 **or** *CDE* = 58 **or** *ADF* = 58		5	M1	may be seen marked on the diagram
	e.g. *DEF* = 58 ÷ 2 **or** *DEF* = (180 – 122) ÷ 2			M1	complete method to find angle *DEF*
		29		A1	
				B2	dep on M2 for fully correct reasons for their method (B1 dep on M1 for one correct reason stated and used) e.g. Allied angles, co-interior angles, Alternate angles, Corresponding angles, Vertically opposite angles are equal (or Vertically opposite angles are equal), Angles on a straight line add up to 180°(or angles on a straight line add to 180°), Sum of two angles in a triangle are equal to opposite exterior angle, Angles in a triangle add up to 180°(or Angles in a triangle add up to 180°), Base angles in an isosceles triangle Angles in a quadrilateral add up to 360. (accept "4-sided shape"or parallelogram) Opposite angles of a parallelogram are equal
					Total 5 marks

Q	Working	Answer	Mark	Notes
24	$\frac{x+10}{2}=9$ **or** $x = 8$		4	M1 (indep)
	$\frac{4+7+x+10+y+y}{6}=11$oe **or** '66' – 4 – 7 – 10 (= 45)			M1 where x may be a number $7 < x < 10$
	(y =) (6 × 11 – 4 – 7 – 10 – '8') ÷ 2			M1 ft their ft their value of x provided $7 < x < 10$ for a fully correct method
		$x = 8$ and $y = 18.5$ oe		A1
				Total 4 marks

25	E.g. 1 − 0.2 (= 0.8) **or** 100(%) − 20(%) (= 80(%)) **or** $\frac{1080}{80}$(= 13.5) oe		3	M1
	E.g. 1080 ÷ 0.8 or 1080 ÷ 80 × 100 or '13.5' × 100 1080 × 100 ÷ 80			M1 for a complete method
		1350		A1
				Total 3 marks

Practice Tests Set 14 – Paper 2F-3F mark scheme, performance data and suggested grade boundaries

					Edexcel averages: scores of candidates who achieved grade:					
Qn	**Skill tested**	**Mean score**	**Max score**	**Mean %**	**ALL**	**5**	**4**	**3**	**2**	**1**
1	Linear equations	0.90	1	90	0.90	0.99	0.97	0.89	0.78	0.42
2	Algebraic manipulation	0.73	1	73	0.73	0.95	0.82	0.67	0.31	0.24
3	Measures	0.67	1	67	0.67	0.89	0.72	0.55	0.48	0.24
4	Decimals	0.60	1	60	0.60	0.89	0.67	0.45	0.32	0.06
5	Algebraic manipulation	0.47	1	47	0.47	0.81	0.50	0.30	0.12	0.00
6	Percentages	1.59	2	80	1.59	1.93	1.81	1.44	0.97	0.88
7	Sequences	3.91	5	78	3.91	4.42	4.27	3.85	3.25	1.88
8	Measures	2.34	3	78	2.34	2.63	2.55	2.30	1.88	1.27
9	Ratio and proportion	2.81	4	70	2.81	3.70	3.20	2.40	1.74	0.66
10	Applying number	2.11	3	70	2.11	2.59	2.36	2.05	1.48	0.39
11	Fractions	2.20	3	73	2.20	2.75	2.32	2.12	1.38	0.97
12	Graphical representation of data	2.86	4	72	2.86	3.54	3.09	2.71	1.98	0.94
13	Ratio and proportion	1.19	2	60	1.19	1.91	1.27	0.92	0.31	0.15
14	Graphs	2.25	4	56	2.25	3.02	2.49	1.97	1.20	0.76
15	Percentages	3.28	6	55	3.28	4.84	3.73	2.34	1.43	0.72
16	Graphical representation of data	2.15	4	54	2.15	3.37	2.43	1.48	0.74	0.27
17	Statistical measures	2.19	5	44	2.19	3.53	2.67	1.28	0.41	0.27
18	Mensuration of 2D shapes	1.95	5	39	1.95	3.57	1.91	1.13	0.48	0.24
19	Probability	1.32	4	33	1.32	2.37	1.50	0.70	0.19	0.00
20	Trigonometry and Pythagoras'	0.85	3	28	0.85	1.70	0.88	0.27	0.14	0.09
21	Applying number	1.11	4	28	1.11	2.08	1.08	0.51	0.42	0.15
22	Expressions and formulae	0.57	2	28	0.57	1.01	0.51	0.30	0.38	0.27
23	Angles, lines and triangles	1.37	5	27	1.37	2.76	1.25	0.61	0.28	0.18
24	Statistical measures	1.00	4	25	1.00	2.11	0.94	0.36	0.09	0.06
25	Percentages	0.66	3	22	0.66	1.47	0.58	0.14	0.11	0.03
		41.08	**80**	**51**	**41.08**	**59.83**	**44.52**	**31.74**	**20.87**	**11.14**

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Suggested grade boundaries

Grade	5	4	3	2	1
Mark	52	37	26	16	7