

Practice Tests Set 15 – Paper 2F-3F mark scheme, performance data and suggested grade boundaries

Qn	Working	Answer	Mark	Notes
1 (b)		18	1	B1 cao
2 (d)	$\frac{45}{60}, \frac{24}{60}, \frac{28}{60}, \frac{40}{60}$ or 0.75, 0.4, 0.466..., 0.666... or 75%, 40%, 46.6%, 66.6%		2	M1 for a method to compare the fractions If M0, award B1 for any three of these fractions in the correct order or for all fractions (or dec or perc) in correct reverse order
		$\frac{2}{5}, \frac{7}{15}, \frac{2}{3}, \frac{3}{4}$		A1 allow answers in any form (dec or perc)
3 (e)	$\frac{36}{96}$ oe		2	M1 for fraction or for partial simplification.
		$\frac{3}{8}$		A1 cao correct answer scores full marks
				Total 2 marks

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4	2, 2, 5 and 5, 7 or seen on a ladder or at the end of branches OR for at least 3 multiples of both 20 and 35 e.g. 20, 40, 60, ... and 35, 70, 105, ...		2	M1
		140		A1 allow $2 \times 2 \times 5 \times 7$ oe
				Total 2 marks
5	$30 \div 3.05 (= 9.8\dots)$		3	M1 oe, e.g. adding 9 lots of 3.05
	$30 - 9 \times 3.05$ oe			M1
		2.55		A1 oe
				Total 3 marks
6	$4 \times 4 \times 4 (= 64)$ or $60 \times 48 \times 40 (= 115\,200)$ OR $60 \div 4 (= 15)$, $48 \div 4 (= 12)$, $40 \div 4 (= 10)$ oe “115 200” \div “64” or “15” \times “12” \times “10”		3	M1 for finding the volume of either the cube or carton OR finding the number of cartons that fit along each edge of the box
				M1 for a complete method
		1800		A1
				Total 3 marks
7	$\frac{1}{2}(6+10) \times 4$		2	M1 for correct application of formula allow triangle method
		32		A1 cao
				Total 2 marks

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Qn	Working	Answer	Mark	Notes
8	$5 \times 25 (= 125)$		4	M1 total number of balloons
	'125' \div 32 (= 3.9....)			M1
	'125' – (32 \times 3) or 125 – 96 or $3\frac{29}{32}$		M1	
		29		A1
				Total 4 marks

9	$72 \div 3 (= 24)$ or $\frac{x}{68} = \frac{72}{3}$		4	M1
	'24' \times 68 (= 1632) or $(x =) \frac{72}{3} \times 68$ oe			M1
	'1632' \div 60 (= 27.2) or $30 \times 60 (= 1800)$ or '1632' \div 3600 (= $\frac{34}{75} = 0.453(333\dots)$)		M1	
		Yes with correct figures		A1 Yes and 27.2 or (1632 and 1800) seen or Yes and 0.453 oe seen
				Total 4 marks

10 (a)		bus	train	plane	total	3	B3 for all 6 entries correct (B2 for 4 or 5 correct entries) (B1 for 2 or 3 correct entries)
	men	12	15	53	80		
	women	17	28	25	70		
	total	29	43	78	150		
(b)					$\frac{15}{80}$	1	B1 oe e.g. $\frac{3}{16}$, 0.1875, 18.75%
							Total 4 marks

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Qn	Working	Answer	Mark	Notes
11 (a)	20 + 45 or 20 + 9 × 5		2	M1
		65		A1
(b)	164 – 20 (= 144)		3	M1
	'144' ÷ 9 (= 16)			M1
(c)		16		A1 cao
			2	M1 for $T = an + 20$ or $T = 9n + k$ or $9n + 20$
		$T = 9n + 20$		A1 for $T = 20 + 9n$ or $T = 9n + 20$
				Total 7 marks

12 (a)		243	1	B1 cao
	(b)	Multiplying previous term by 3	1	B1 for multiplying previous term by 3 oe "×3" or 81×3
(c)		19 683	1	B1 cao
				Total 3 marks

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Qn	Working	Answer	Mark	Notes
13 (a)		2 460 000	1	B1 accept 2,460,000 or 246 0000
(b)		7.4×10^{-4}	1	B1
(c)			2	M1 for correct value not in standard form e.g. 58.3×10^5 or 583×10^4 or 0.583×10^7 oe
		5 830 000		A1 5 830 000 or 5.83×10^6 do not isw.
				Total 4 marks

14 (a)			Spinner B				Correct values	2	B2 for all 9 correct values (B1 5 or 6 or 7 or 8 correct values)
			1	2	3	4			
		1	(2)	(3)	4	5			
	Spinner A	2	(3)	4	5	6			
	3	4	5	6	7				
(b)							2	M1 for $\frac{6}{m}$ where $m > 6$ or $\frac{n}{12}$ where $n < 12$	
						$\frac{6}{12}$		A1ft " $\frac{6}{12}$ " oe ft their table. isw incorrect cancelling.	
(c)	$\frac{3}{12} \times 84$						2	M1 allow "a fraction" $\times 84$ fraction cannot be zero or improper	
						21		A1 cao	
								Total 6 marks	

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Qn	Working	Answer	Mark	Notes
15 (a)	e.g. $(8.3 - 3.2) \div 3$		2	M1 for a complete method
		1.7		A1
(b)	$9.45 \div 7$		2	M1
		1.35		A1
				Total 4 marks

16	$\pi \times 15^2 (= 225\pi)$		2	M1
		707		A1 awrt 707
				Total 2 marks

17			3	M1 for one of - 5 numbers with a median of 8 - 5 numbers with a mode of 5 - 5 numbers with a range of 10 - 5 numbers with a sum of 45
				M1 for two of - 5 numbers with a median of 8 - 5 numbers with a mode of 5 - 5 numbers with a range of 10 - 5 numbers with a sum of 45
		5, 5, 8, 12, 15		A1 Note: The numbers can be in any order
				Total 3 marks

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Qn	Working	Answer	Mark	Notes	
18	for 0.08×1200 oe (= 96) or 1.08×1200 oe (= 1296)	OR 1200×1.08^3	3	M1 for 0.08×1200 oe (= 96) or 1.08×1200 oe (= 1296)	OR M2 for 1200×1.08^3 or 1200×1.08^4 (= 1632.59) (M1 for 1200×1.08^2 (= 1399.68))
			M1 for completing method to find total amount in the account		
	$1.08 \times "1296"$ (= 1399.68) oe $1.08 \times "1399.68"$ (= 1511.6544) oe			A1 accept 1511 – 1512	
		1512		SC: if no other marks gained award M1 for 0.24×1200 oe or 288 or 1488 accept $(1 + 0.08)$ as equivalent to 1.08 throughout	
				Total 3 marks	

19			3	M1 for continual prime factorisation (at least two consecutive steps correct) or at least two stages of a factor tree, or table, correct.	
				M1 for a fully correct factor tree or a list (2,2,2,2,5,11) or $2 \times 2 \times 2 \times 2 \times 5 \times 11$	
		$2^4 \times 5 \times 11$		A1 dep M2 for $2^4 \times 5 \times 11$ (with working seen)	
				Total 3 marks	

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Qn	Working	Answer	Mark	Notes
20	$180^\circ - (104^\circ + 42^\circ) (= 34^\circ)$ or $\frac{180^\circ - '34^\circ'}{2}$		4	M1 for one correct stage
		73		A1 for 73
	<ul style="list-style-type: none"> • <u>Angles</u> in a <u>triangle</u> sum to 180° or (angles in a <u>triangle</u> sum to 180°) • Angle BDC and angle DBA are <u>alternate</u> angles • Base angles in an <u>isosceles</u> triangle are equal or (<u>Allied / co-interior</u> angles add up to 180°) 	correct reasons		B2 dep fully correct method. for all correct reasons for the method used NB allied angles may not be needed if using ABD sum to 180° (B1 dep M1 for one correct reason)
				Total 4 marks

21	e.g. $\frac{3}{"10"} \times 80 (= 24)$ or $\frac{2}{"10"} \times 80 (= 16)$ or $\frac{5}{"10"} \times 80 (= 40)$		5	M2 for a complete method to find the number of chocolate cakes or lemon cakes or fruit cakes "10" comes from $3 + 2 + 5$
				(M1 for correct use of the ratio e.g. $80 \div "10" (= 8)$)
	e.g. $"16" \times \frac{3}{4} \times 1.7(0) (= 20.4(0))$ or $"40" \times \frac{7}{8} \times 2.4(0) (= 84)$			M1 for a method to find the profit for lemon cakes or fruit cakes
	e.g. $"24" \times 2 (= 48)$ and $"16" \times \frac{3}{4} \times 1.7(0) (= 20.4(0))$ and $"40" \times \frac{7}{8} \times 2.4(0) (= 84)$			M1 for a method to find the profit for all 3 cakes
		152.4(0)		A1
				Total 5 marks

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Qn	Working	Answer	Mark	Notes
22	e.g. $5 \times 4 + 15 \times 10 + 25 \times 15 + 35 \times 25 + 45 \times 6 (= 1690)$ or $20 + 150 + 375 + 875 + 270 (= 1690)$		4	M2 For correct products using midpoints (allowing one error) with intention to add. If not M2 then award M1 for products using frequency and a consistent value within the range (allowing one error) with intention to add or correct products using midpoint without addition.
	“1690” \div 60			M1 dep on M1
		28.2		A1 accept 28.1 – 28.2
				Total 4 marks

23	e.g. $a = (-3 + 47) \div 2 (= 22)$ or $\frac{11+b}{2} = -19 (b = -38 - 11 = -49)$ or method to add 25 to -3 or method to subtract 25 from 47 or method to subtract 30 from -19 or method to subtract 60 from 11		2	M1 for a correct method to find either coordinate or one coordinate correct. Look for correct method on their diagram, if used.
		$a = 22, b = -49$		A1 both correct
				Total 2 marks

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Qn	Working	Answer	Mark	Notes
24	Use of 2 hrs 42 mins = 2.7 hrs or 162 mins		4	B1
	e.g. $90 \times 2.7 (= 243)$ or e.g. $\frac{90}{60} \times 162 (= 243)$ or e.g. $\frac{S}{90} = \frac{2.7}{3}$			M1 for use of $D = S \times T$ (accept use of their time e.g. 90×2.42) or for setting up an equation using proportion
	e.g. “243” $\div 3$ or ($S =$) $90 \times \frac{2.7}{3}$			M1 (dep on M1) for their $D \div 3$ or for solving their equation
		81		A1
				Total 4 marks

25	e.g. $31.5(0) \div (1 - 0.3)$		3	M2 for a complete method e.g. $31.5(0) \div (1 - 0.3)$
				(M1) for $31.5(0) \div (100 - 30) (= 0.45)$ or e.g. $(1 - 0.3)x = 31.5(0)$
		45		A1
				Total 3 marks

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Qn	Working	Answer	Mark	Notes
26	$15 \times 24 (= 360)$ or $25 \times 18 (= 450)$		3	M1 may be implied by 810 seen
	$\frac{'360'+ '450'}{40} (= \frac{810}{40})$			M1 dep on M1
		20.25 oe		A1 for 20.25 accept 20.3 (allow 20 from correct working)
				Total 3 marks

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Qn	Working	Answer	Mark	Notes
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New Qn	Question	Skill tested	Mean score	Max score	Mean %	Edexcel averages: scores of candidates who achieved grade:					
						ALL	5	4	3	2	1
1	Q09b	Powers and roots	0.79	1	79	0.79	0.95	0.62	0.69	0.14	0.40
2	Q09d	Fractions	1.79	2	90	1.79	1.98	1.88	1.62	1.29	0.40
3	Q09e	Fractions	1.78	2	89	1.78	1.97	2.00	1.54	1.29	0.80
4	Q14	Integers	1.38	2	69	1.38	1.75	1.12	0.50	1.14	0.50
5	Q06	Applying number	2.64	3	88	2.64	2.80	3.00	2.64	2.43	1.17
6	Q09	3D shapes and volume	2.21	3	74	2.21	2.70	2.88	1.14	0.71	1.00
7	Q05e	Mensuration of 2D shapes	1.59	2	80	1.59	1.90	1.75	1.15	0.86	0.00
8	Q06	Applying number	3.20	4	80	3.20	3.77	3.25	2.46	1.43	1.20
9	Q10	Ratio and proportion	2.99	4	75	2.99	3.82	3.12	1.54	0.86	0.20
10	Q08	Probability	3.14	4	79	3.14	3.24	3.00	3.21	3.14	2.67
11	Q08	Expressions and formulae	5.27	7	75	5.27	6.50	5.13	3.31	1.86	1.80
12	Q03	Sequences	2.46	3	82	2.46	2.81	2.13	1.85	2.43	0.80
13	Q16	Standard form	3.19	4	80	3.19	3.86	2.50	2.46	1.43	1.20
14	Q14	Probability	3.96	6	66	3.96	5.09	3.25	2.39	0.86	0.40
15	Q07	Applying number	2.98	4	75	2.98	3.70	2.00	2.00	2.00	1.00
16	Q15	Mensuration of 2D shapes	1.39	2	70	1.39	1.85	1.00	0.86	0.00	0.33
17	Q17	Statistical measures	1.94	3	65	1.94	2.57	1.50	0.92	0.29	0.40
18	Q24	Percentages	1.90	3	63	1.90	2.55	1.38	1.21	0.14	0.00
19	Q15	Powers and roots	1.68	3	56	1.68	2.27	1.38	0.69	0.00	0.40
20	Q07	Geometrical reasoning	1.87	4	47	1.87	2.50	1.62	0.69	0.43	0.20
21	Q26	Ratio and proportion	3.21	5	64	3.21	4.70	1.88	0.64	0.29	0.00
22	Q20	Statistical measures	2.68	4	67	2.68	3.73	1.38	1.00	0.43	0.83
23	Q22	Graphs	0.97	2	49	0.97	1.50	0.38	0.00	0.00	0.00
24	Q23	Measures	2.49	4	62	2.49	3.67	0.75	0.79	0.00	0.33
25	Q21b	Percentages	1.47	3	49	1.47	2.25	0.38	0.21	0.00	0.00
26	Q21	Statistical measures	1.53	3	51	1.53	2.32	0.38	0.15	0.00	0.00
			54.76	80		54.76	70.10	44.04	31.31	19.59	13.93

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Suggested grade boundaries

Grade	5	4	3	2	1
Mark	57	38	26	17	10