GCSE Mathematics (9-1) Practice Tests Set 8 – Paper 1F mark scheme

Question	Working	Answer	Marks		Notes
1		0.07	1	B1	cao
2		$\frac{4}{5}$	1	B1	cao
3	840 ÷ 7 (=120) oe **or** $\frac{6}{7}\times 840$ oe **or** 0.14(2…) × 840 (=120) oe **or** 117.6	720	2	M1	
				A1	cao
4		11*x*	1	B1	
5		20*ef*	1	B1	
6		3	1	B1	
7 (a)		E	1	B1	Accept 0.2
(b)		D	1	B1	
(c)		C	1	B1	Accept 0.5
8 a		6.5	1	B1	
b		8000	1	B1	

Question		Working	Answer	Marks		Notes

9	a	<table><tr><th></th><th>UK</th><th>Africa</th><th>USA</th><th>Total</th></tr><tr><td>Male</td><td>14</td><td>7</td><td>2</td><td>23</td></tr><tr><td>Female</td><td>16</td><td>9</td><td>2</td><td>27</td></tr><tr><td>Total</td><td>30</td><td>16</td><td>4</td><td>50</td></tr></table>		3	B3	If not B3 then
						B2 for at least 4 correct entries
						If not B2 then
						B1 for at least 2 correct entries

	b	$\frac{9}{50}$ **or** 0.18	18	2	M1 A1	for selecting 9 (may be seen in a calculation)
10	a		17	1	B1	
	b		$7t + 6d$	2	B2	B1 for $7t$ **or** (+) $6d$
11	a		Kenya	1	B1	
	b	67 – 27 (may be seen on bar chart)	40	2	M1	for $x - 27$ (can be implied by an answer of 39, 41)
					A1	cao
	c	56 : 42 oe **or** 3 : 4 **or** 1 : $\frac{4}{3}$ oe	4 : 3	2	M1	**or** for an unsimplified ratio with one value correct e.g. 56 : 41, 66 : 42 **or** for 53 : 41 **or** for 3 and 4 in incorrect notation
					A1	

Question	Working	Answer	Marks		Notes
d	46 + 37 + 38 (=121) **or** $\frac{46}{m}$, $m > 46$	$\frac{46}{121}$	2	M1	
				A1	cao
12	6 × 1000 (=6000) **or** 475 ÷ 1000 (=0.475)	12	3	M1	
	6 × 1000 ÷ 475 **or** 6 ÷ (475 ÷ 1000) **or** 12.6(3…) **or** 475 × 12 (=5700) **or** 475 × 13 (=6175)			M1	or for repeated subtraction of 475 from 6000 **or** repeated addition of 475 (may work in grams or kg)
				A1	cao SC : B2 for an answer of 13
13 (a)		(2, –1)	1	B1	
(b)		3.6	1	B1	Allow 3.4 to 3.8 and answers written as fractions in this range eg 3½
(c)		D marked at (–1, –1)	1	B1	
14 (a)		24	1	B1	Accept 32 or 40 or 48
(b)		2	1	B1	
(c)		No It is divisible by 3	1	B1	Only consider reason if No is given. Allow any reason that shows a clear understanding of why 57 is not prime, eg it is divisible by 19 **or** 3 **or** equal to 3 × 19.

Question	Working	Answer	Marks		Notes
15 i		(triangular) prism	1	B1	
ii		5	1	B1	
iii		6	1	B1	
16 a	12, 24, 36… **and** 20, 40, 60, … **or** 2 , 2 , 3 **and** 2 , 2 , 5 (may be on a factor tree oe)	60	2	M1	accept prime factors seen in factor tree **or** correct position in Venn diagram
				A1	for 60 **or** 2 × 2 × 3 × 5 oe
b	at least 3 of 2, 3, 4, 6, 8, 12 **and** at least 3 of 2, 4, 7, 8, 14, 28 **or** 2 , 2 , 2 , 3 **and** 2 , 2 , 2 , 7 (may be on a factor tree oe)	8	2	M1	accept prime factors seen in factor tree or correct position in Venn diagram
				A1	for 8 **or** 2 × 2 × 2 oe
17	$\frac{180-80}{2}$ (= 50)		3	M1	could be marked correctly on diagram or in working with no contradiction
	360 –"50" − 90			M1	dep on first M1
		220		A1	cao

Question	Working	Answer	Marks		Notes
18	x −2 −1 0 1 2 3 y −1 1 3 5 7 9		3	B3	For a correct line between $x = -2$ and $x = 3$
				B2	For a correct straight line segment through at least 3 of (−2, −1) (−1, 1) (0, 3) (1, 5) (2, 7) (3, 9) **OR** for all of (−2, −1) (−1, 1) (0, 3) (1, 5) (2, 7) (3, 9) plotted but not joined
				B1	For at least 2 correct points plotted or stated (ignore incorrect points) **OR** for a line drawn with a positive gradient through (0, 3) **and** clear intention to use a gradient of 2 (eg. a line through (0, 3) and (0.5, 5) **OR** a line drawn with a gradient of 2
19 a		Reflection in $x = -1$	2	B1	for reflection
				B1	for $x = -1$ NB. If more than one transformation then award no marks
b		(3, –1) (3, –5) (5, –5)	1	B1	condone missing label
c		Translation $\begin{pmatrix} -2 \\ 6 \end{pmatrix}$	1	B1	NB. If more than one transformation then award no marks

Question	Working	Answer	Marks		Notes
20 a		80 000	1	B1	
b	$0.5 \times 10^{5-8}$ **or** 0.0005 **or** 5×10^{n} **or** 5.0×10^{n}	5×10^{-4}	2	M1	
				A1	for 5×10^{-4} or 5.0×10^{-4}
21 a		y^{14}	1	B1	
b		$16m^{12}$	2	B2	if not B2 then B1 for am^{12} **or** $16m^{b}$ **or** $2^{4}m^{12}$ $b \neq 0, 12$ $a \neq 1, 16$
c	$5x + 15 = 3x - 4$ **or** $x + 3 = \frac{3x}{5} - \frac{4}{5}$	$-\frac{19}{2}$ oe	3	M1	for removing bracket in a correct equation or dividing all terms by 5 in a correct equation
	e.g. $5x - 3x = -4 - 15$		2	M1	ft from $ax + b = cx + d$ for correctly isolating terms in x on one side of equation and constant terms on the other side
				A1	dep on at least M1
22 ai		1, 2, 3, 4, 6, 12	1	B1	cao
aii		1, 3, 5, 7, 9, 10, 11	1	B1	cao
23 (a)	$ac = M + bd$ **or** $-ac = -M - bd$ **or** $\frac{M}{c} = a - \frac{bd}{c}$		2	M1	For a correct first stage
		$a = \frac{M + bd}{c}$		A1	oe, eg $a = \frac{M}{c} + \frac{bd}{c}$, $a = \frac{-M - bd}{-c}$ [must have been seen with $a =$ to award accuracy mark]

Question	Working	Answer	Marks		Notes
(b)	$5x < 36 + 4$ oe		2	M1	Accept as equation or with the wrong inequality sign. Also award M1 for an answer with an = sign or the incorrect inequality sign.
		$x < 8$		A1	
(c)	eg $6e^2(3f^3 - 2ef)$, eg $2f(9e^2f^2 - 6e^3)$ eg $ef(18ef^2 - 12e^2)$		2	M1	Any correct partially factorised expression with at least 2 terms in the common factor **or** for the correct common factor and a 2 term expression inside the brackets with just one error
		$6e^2f(3f^2 - 2e)$		A1	
24 (a)		$(x - 4)(x + 6)$		M1	for $(x + a)(x + b)$ where either $ab = -24$ **or** $a + b = +2$ e.g $(x - 6)(x + 4)$
				A1	
(b)		4, − 6	1	B1	cao **or** ft from any $(x + p)(x + q)$
25 a		110	1	B1	for 108 – 112
b		cross marked in correct position	3	M1	for arc drawn radius 7.8 cm – 8.2 cm centre L **or** P marked 7.8 cm – 8.2 cm from L **or** 40 ÷ 5 (= 8)
				M1	for bearing of 238 º – 242 º from M
				A1	Overlay (P 7.8 cm – 8.2 cm from L and on a bearing of 238 º – 242º from M)

Question	Working	Answer	Marks		Notes
26 a	Two readings from graph 20°C apart eg. readings from 0°C (30 – 34 °F) and 20°C (66 – 70 °F)	36	2	M1	
				A1	accept answer in range 34 – 38
b		No with explanation	1	B1	e.g. graph does not go through (0,0) (accept 0) **or** temperatures in °F are not proportional to temperatures in °C **or** gives counter example that doubling does not work **or** 60°C is the same as 140°F (135 – 145) **or** 15°C is not 43°F

Practice Tests Set 8 – Paper 1F

					Edexcel averages:	Mean score of students achieving grade				
Question	**Skills tested**	**Mean score**	**Max score**	**Mean %**	**ALL**	**5**	**4**	**3**	**2**	**1**
Q03	Fractions	1.32	2	66	1.32	1.76	1.62	1.41	1.05	0.67
Q04	Algebraic manipulation	0.82	1	82	0.82	0.96	0.92	0.84	0.77	0.56
Q05	Algebraic manipulation	0.77	1	77	0.77	0.93	0.88	0.79	0.76	0.50
Q06	Linear equations	0.89	1	89	0.89	0.99	0.99	0.95	0.87	0.59
Q07a	Probability	0.88	1	88	0.88	0.98	0.96	0.92	0.82	0.70
Q07b	Probability	0.97	1	97	0.97	1.00	0.99	0.99	0.97	0.91
Q07c	Probability	0.87	1	87	0.87	0.98	0.97	0.92	0.82	0.64
Q08a	Measures	0.71	1	71	0.71	0.89	0.83	0.71	0.62	0.47
Q08b	Measures	0.62	1	62	0.62	0.83	0.73	0.65	0.50	0.40
Q09a	Graphical representation of data	2.63	3	88	2.63	2.96	2.91	2.77	2.56	1.97
Q09b	Percentages	1.27	2	64	1.27	1.79	1.57	1.34	0.98	0.53
Q10a	Linear equations	0.89	1	89	0.89	0.99	0.96	0.92	0.88	0.69
Q10b	Algebraic manipulation	1.54	2	77	1.54	1.92	1.79	1.66	1.41	0.87
Q11a	Graphical representation of data	0.98	1	98	0.98	1.00	0.99	0.98	0.97	0.93
Q11b	Graphical representation of data	1.76	2	88	1.76	1.96	1.92	1.86	1.70	1.38
Q11c	Ratio and proportion	1.27	2	64	1.27	1.82	1.61	1.33	0.96	0.54
Q11d	Fractions	1.62	2	81	1.62	1.95	1.87	1.73	1.47	1.01
Q12	Measures	2.16	3	72	2.16	2.89	2.60	2.30	1.75	1.13
Q13a	Angles[comma] lines and triangles	0.83	1	83	0.83	0.96	0.91	0.87	0.77	0.57
Q13b	Angles[comma] lines and triangles	0.80	1	80	0.80	0.91	0.88	0.84	0.75	0.58
Q13c	Polygons	0.76	1	76	0.76	0.96	0.89	0.80	0.67	0.38
Q14a	Integers	0.90	1	90	0.90	0.99	0.98	0.92	0.86	0.74
Q14b	Integers	0.74	1	74	0.74	0.95	0.88	0.78	0.63	0.39
Q14c	Integers	0.44	1	44	0.44	0.73	0.63	0.45	0.25	0.06
Q15i	3D shapes and volume	0.64	1	64	0.64	0.80	0.75	0.67	0.56	0.41

Q15ii	3D shapes and volume	0.93	1	93	0.93	0.99	0.96	0.94	0.90	0.87
Q15iii	3D shapes and volume	0.53	1	53	0.53	0.70	0.64	0.50	0.48	0.37
Q16a	Powers and roots	0.90	2	45	0.90	1.52	1.18	0.90	0.62	0.24
Q16b	Powers and roots	1.15	2	57	1.15	1.63	1.44	1.23	0.90	0.45
Q17	Angles, lines and triangles	1.62	3	54	1.62	2.74	2.35	1.75	0.71	0.11
Q18	Graphs	1.48	3	49	1.48	2.68	2.31	1.43	0.68	0.09
Q19a	Transformation geometry	0.67	2	34	0.67	1.42	1.04	0.55	0.26	0.08
Q19b	Transformation geometry	0.41	1	41	0.41	0.82	0.62	0.39	0.15	0.06
Q19c	Transformation geometry	0.14	1	14	0.14	0.44	0.23	0.06	0.01	0.00
Q20a	Standard form	0.77	1	77	0.77	0.95	0.92	0.85	0.71	0.35
Q20b	Standard form	1.07	2	54	1.07	1.65	1.49	1.11	0.70	0.30
Q21a	Algebraic manipulation	0.68	1	68	0.68	0.92	0.88	0.73	0.55	0.24
Q21b	Algebraic manipulation	0.46	2	23	0.46	0.86	0.61	0.45	0.25	0.12
Q21c	Linear equations	1.05	3	35	1.05	2.38	1.64	0.87	0.34	0.09
Q22ai	Set language and notation	0.56	1	56	0.56	0.87	0.72	0.52	0.40	0.27
Q22aii	Set language and notation	0.24	1	24	0.24	0.51	0.31	0.18	0.14	0.10
Q23a	Expressions and formulae	0.23	2	12	0.23	0.83	0.29	0.11	0.03	0.00
Q23b	Inequalities	0.59	2	30	0.59	1.47	0.90	0.41	0.19	0.03
Q23c	Algebraic manipulation	0.30	2	15	0.30	0.92	0.43	0.18	0.05	0.00
Q24a	Quadratic equations	0.28	2	14	0.28	0.99	0.38	0.13	0.04	0.02
Q24b	Quadratic equations	0.04	1	4	0.04	0.22	0.03	0.01	0.01	0.00
Q25a	Angles[comma] lines and triangles	0.22	1	22	0.22	0.46	0.30	0.19	0.10	0.05
Q25b	Measures	0.88	3	29	0.88	1.88	1.25	0.78	0.44	0.12
Q26a	Graphs	0.15	2	8	0.15	0.29	0.20	0.18	0.04	0.02
Q26b	Graphs	0.23	1	23	0.23	0.45	0.31	0.24	0.10	0.02
			80	**55**	**44.31**	**63.44**	**54.35**	**44.85**	**34.67**	**22.64**

Suggested Grade Boundaries based on peformance of students in Summer 2018

5	4	3	2	1
58	49	40	29	17