

## GCSE Mathematics (9–1) Practice Tests Set 9 – Paper 2F mark scheme

Question	Working	Answer	Mark	Notes
1		40	1	B1
2	$\frac{42}{80} \times 100$ oe, e.g. $42 \times 1.25$	52.5	2	M1 A1
3	$0.72 \times 350$ oe	252	2	M1 A1
				<b>Total 3 marks</b>

Question	Working	Answer	Mark	Notes
4 (a)		11	1	B1
(b)		18	1	B1
(c)		Correctly completed pictogram	1	B1 1½ symbols oe
				<b>Total 3 marks</b>

5	a		R marked	1	B1
	b		Trapezium	1	B1
	c		65	1	B1 accept answer in the range 63 – 67

Question		Working				Answer	Mark	Notes	
6	(a)		<b>chocolate</b>	<b>strawberry</b>	<b>vanilla</b>	<b>TOTAL</b>	Correct completed table	3	B3 fully correct table B2 for 4 or 5 correct entries B1 for 2 or 3 correct entries
		<b>cones</b>	16	<b>40</b> .....	22	78			
		<b>tubs</b>	7 .....	14	<b>21</b> .....	<b>42</b> .....			
		<b>TOTAL</b>	23	<b>54</b> .....	<b>43</b> .....	120			
	(b)					$\frac{22}{120}$	2	M1 For $\frac{22}{n}$ ( $n > 22$ ) or $\frac{m}{120}$ ( $m < 120$ ) A1 120) oe, allow 0.18(33...)	
								<b>Total 5 marks</b>	
7	(a)	$2 + 5 \times 7 = 2 + 35$				Correct statement	1	B1 e.g. Billy should have done $5 \times 7$ and added 2 to the answer to this.	
	(b)					Correct sum	1	B1 e.g. $2 + 4 = 6$ (2 added to any even number)	
								<b>Total 4 marks</b>	

<b>8</b>	(a)		2	1	B1	
	(b)	$20 \div 2 (= 10^{\text{th}})$ or $(20 + 1) \div 2 (= 10.5^{\text{th}})$	1	2	M1	Or evidence of correct working by table or listing numbers
	(c)	$(6 \times 0) + (5 \times 1) + ((7 \times 2) + (1 \times 3) + (0 \times 4) + (1 \times 5)) + 5 + 14 + 3 + (0) + 5$	27	2	M1	For at least 4 correct products with intention to add.
					A1	
						<b>Total 5 marks</b>

Question	Working	Answer	Mark	Notes
<b>9</b>	$1.35 \div 3 (= 0.45)$ $[4.15 - (5 \times "0.45")] \div 2$	0.95	3	M1 M1 A1
				<b>Total 3 marks</b>

<b>10</b>	(a)		7.5	1	B1	oe $\frac{15}{2}, 7\frac{1}{2}$
	(b) (i)		3.181(983516..)	2	M1	For 57.9121 or 18.2 oe
	(ii)		3.2	1	B1ft	ft as long as (i) has at least 3 sf.
						<b>Total 4 marks</b>

<b>11</b>	(a)		3.9	1	B1
	(b)		1296	1	B1
	(c)	$(26.72\dots)^2$ or $\frac{15775.36}{22.09}$	714.1(40335)	2	M1 for 26.72... or 15775.36 or 22.09 A1
	(d)		714	1	B1 ft if at least 4 sig figs are given in (c)

Question	Working	Answer	Mark	Notes
<b>12</b> (a)(i)		70	1	B1 Accept 69 – 71
(ii)		64	1	B1 Accept 63 – 65
(b)	500 euros = $(500 \div 50) \times$ “70” (= 700) oe “700” $\times 2.7$	1890	3	M1 M1 A1 1880 – 1900, ft answer to (a)(i)
				<b>Total 5 marks</b>

Question	Working	Answer	Mark	Notes
<b>13</b>	240 m, 200 f $\frac{65}{100} \times 240$ (= 156) or $\frac{85}{100} \times 200$ (= 170) 156 + 170	326	4	B1 for 240 and 200 M1 as long as their numbers add up to 440

Question	Working	Answer	Mark	Notes
14 (a)	$-2p = 15 - 8$ or $8 = 2p + 15$ or $\frac{8}{2} - p = \frac{15}{2}$ oe	-3.5	2	M1 A1 oe
15	eg $\frac{x+10+y}{3} = 11$ oe or $y - x = 7$ oe $3 \times 11 (=33)$	$x = 8, y = 15$	2	M1 for one correct equation in $x$ and $y$ <b>OR</b> finding the total of $x$ , 10 and $y$ <b>OR</b> two numbers with a sum of 23 <b>OR</b> two numbers with a range of 7  Note: condone non-integers for the award of M1 A1
				<b>Total 2 marks</b>

Question	Working	Answer	Mark	Notes
16	area = $2 \times 1.25 (= 2.5)$  $(F = ) 42 \times "2.5"$ or $42 = \frac{F}{2.5}$	105		M1 M1 Correct substitution into pressure formula A1 cao

Question	Working	Answer	Mark	Notes	
17	$675 \div (5 + 4) \times 5 (= 375)$	225	3	M1	M2 $675 \div (5 + 4) \times 3$
	“375” $\div 5 \times 3$			M1 dep M1	
				A1	
				<b>Total 3 marks</b>	

Question	Working	Answer	Mark	Notes	
18	$1 \times 5 + 3 \times 9 + 5 \times 24 + 7 \times 40 + 9 \times 7 (= 495)$ or $5 + 27 + 120 + 280 + 63 (= 495)$	5.8	4	M2	for at least 4 correct products added (need not be evaluated) If not M2 then award M1 for consistent use of value within interval (including end points) for at least 4 products which must be added <b>OR</b> correct mid-points <b>used</b> for at least 4 products and not added
	“495” $\div 85$			M1	dep on at least M1 Allow division by their $\sum f$ provided addition or total under column seen
				A1	for 5.8 – 5.824
				<b>Total 4 marks</b>	

Question	Working	Answer	Mark	Notes
<b>19</b>	eg $(6.3 \times 1000) \div 210 (= 30)$	343.2(0)	4	M1 for a method to find the number of candles, could work in grams or kg
	$\frac{2}{5} \times "30" \times 13 (= 156)$			M1 for a method to find money made from the \$13 candles
	$\left(1 - \frac{2}{5}\right) \times "30" \times 0.8 \times 13 (= 187.20)$			M1 for a method to find money made from the reduced candles
				A1
				<b>Total 4 marks</b>

Question	Working	Answer	Mark	Notes
<b>20</b>	6h 42 min = 6.7 h or $6\frac{42}{60}$ oe or 402 (mins) or 24120 (secs) <b>OR</b> 10.8(33...)(km)  eg $6.7 \times 650$ or $(402 \times 650) \div 60$ or $(24120 \times 650) \div 3600$ or $6 \times 650 + 42 \times 10.8$	4355	3	B1 for converting 6h 42min into hours or minutes or seconds <b>OR</b> finding distance travelled in 1 minute  M1 use of $s \times t$ , allow $6.42 \times 650 (=4173)$
				<b>Total 3 marks</b>

Question	Working	Answer	Mark	Notes
21 (a)		$k^{15}$	1	B1
(b)		$5y^4$	2	B2
(c)	$h - f = 3e$ or $\frac{h}{3} = e + \frac{f}{3}$ or $\frac{h - f}{3}$		2	M1
		$e = \frac{h - f}{3}$		A1
				oe, accept $e = \frac{f - h}{-3}$
				<b>Total 6 marks</b>

Question	Working		Answer	Mark	Notes	
22	Eg $\frac{1.5}{100} \times 20\,000$ oe or 300	OR	20 914	3	M1 for eg $\frac{1.5}{100} \times 20\,000$ oe or 300	OR M2 for $20\,000 \times 1.015^3$ or $20\,000 \times 1.015^4$ or 21 227.27..
	$\frac{1.5}{100} \times (20\,000 + '300') = 304.5$ $\frac{1.5}{100} \times (20\,000 + '300' + '304.5')$ = 20913.5675				M1 for completing method	(M1 for $20\,000 \times 1.015^2$ or 20 604.5)
					Accept $1 + 0.015$ as equivalent to 1.015 throughout	
					<b>SC:</b> If no other marks gained, award M1 for $20\,000 \times 1.045$ oe or 20900 or 900	
					A1 Answers in range 20 913– 20 914	
					<b>Total 3 marks</b>	

Question	Working	Answer	Mark	Notes
23	$160^2 + 200^2 (=65600)$ $\sqrt{160^2 + 200^2}$	256	3	M1 M1 A1 accept 256 – 256.2
				<b>Total 3 marks</b>

Question	Working	Answer	Mark	Notes
24	Interior angle of pentagon $(180 \times 3) \div 5 (= 108)$ oe  Interior angle of octagon $(180 \times 6) \div 8 (= 135)$ oe  $(CBF =) 360 - ("108" + "135") (= 117)$	31.5	4	M1 or exterior angle of pentagon = $\frac{360}{5} (= 72)$ or exterior angle of octagon M1 = $\frac{360}{8} (= 45)$ M1 $(CBF =) "72" + "45" (= 117)$ A1
				<b>Total 4 marks</b>

Question	Working	Answer	Mark	Notes
25	$72 \times 1000 (= 72000)$ or $72 \div 60 (= 1.2)$ or $72 \div 60 \div 60 (= 0.02)$ or $60 \div 60 \times 1000 (= 3.6)$	20	3	M1 for at least <b>one</b> of $\times 1000$ or $\div 60$
	$\frac{72}{60 \times 60} \times 1000$			M1 (dep) for a complete method
				A1
				<b>Total 3 marks</b>

Question	Skill tested	Mean score	Max score	Mean %	Mean score of students achieving gade:					
					ALL	5	4	3	2	1
Q01	Decimals	0.88	1	88	0.88	1.00	0.91	0.88	0.84	0.45
Q02	Percentages	1.49	2	75	1.49	1.88	1.67	1.36	1.28	0.36
Q03	Percentages	1.71	2	86	1.71	1.97	1.91	1.64	1.36	1.09
Q04a	Graphical representation of data	0.92	1	92	0.92	1.00	0.93	0.88	0.92	0.73
Q04b	Graphical representation of data	0.92	1	92	0.92	1.00	0.93	0.96	0.88	0.64
Q04c	Graphical representation of data	0.95	1	95	0.95	0.94	0.98	1.00	0.96	0.73
Q05a	Angles[comma] lines and triangles	0.78	1	78	0.78	0.94	0.93	0.68	0.60	0.36
Q05b	Mensuration of 2D shapes	0.48	1	48	0.48	0.66	0.49	0.40	0.40	0.27
Q05c	Angles[comma] lines and triangles	0.66	1	66	0.66	0.91	0.79	0.60	0.40	0.18
Q06a	Graphical representation of data	2.83	3	94	2.83	3.00	2.95	2.72	2.80	2.18
Q06b	Probability	1.47	2	74	1.47	1.62	1.72	1.52	1.12	0.73
Q07a	Integers	0.71	1	71	0.71	0.88	0.72	0.76	0.56	0.36
Q07b	Integers	0.46	1	46	0.46	0.62	0.58	0.44	0.20	0.09
Q08a	Statistical measures	0.58	1	58	0.58	0.97	0.70	0.40	0.32	0.00
Q08b	Statistical measures	0.40	2	20	0.40	0.59	0.42	0.32	0.28	0.18
Q08c	Statistical measures	1.02	2	51	1.02	1.81	1.02	0.64	0.80	0.09
Q09	Applying number	2.08	3	69	2.08	2.75	2.53	1.84	1.48	0.27
Q10a	Powers and roots	0.64	1	64	0.64	0.94	0.79	0.64	0.24	0.09
Q10bi	Electronic calculators	1.84	2	92	1.84	1.91	1.86	1.96	1.64	1.73
Q10bii	Degree of accuracy	0.56	1	56	0.56	0.94	0.72	0.44	0.16	0.00
Q11a	Sequences	0.57	1	57	0.57	0.78	0.63	0.44	0.52	0.18
Q11b	Sequences	0.69	2	35	0.69	1.12	0.84	0.44	0.44	0.00
Q12ai	Graphs	0.96	1	96	0.96	0.97	1.00	0.92	0.96	0.91
Q12aii	Graphs	0.76	1	76	0.76	0.81	0.91	0.76	0.56	0.45
Q12b	Graphs	1.18	3	39	1.18	2.03	1.51	0.60	0.48	0.27
Q13	Percentages	1.49	4	37	1.49	2.75	1.72	1.16	0.32	0.36
Q14	Linear equations	0.94	2	47	0.94	1.81	0.93	0.76	0.44	0.00
Q15	Statistical measures	0.61	2	31	0.61	1.47	0.65	0.28	0.04	0.00

Question	Skill tested	Mean score	Max score	Mean %	Mean score of students achieving grade:					
					ALL	5	4	3	2	1
Q16	Measures	1.80	3	60	1.80	2.75	2.14	1.68	0.92	0.00
Q17	Ratio and proportion	1.30	3	43	1.30	2.59	1.33	1.00	0.48	0.00
Q18	Statistical measures	1.66	4	42	1.66	2.59	2.09	1.04	0.68	0.91
Q19	Applying number	1.93	4	48	1.93	3.16	2.44	2.00	0.24	0.00
Q20	Measures	1.07	3	36	1.07	1.94	1.30	0.72	0.40	0.00
Q21b	Algebraic manipulation	0.96	2	48	0.96	1.28	1.12	0.84	0.64	0.36
Q21c	Expressions and formulae	0.71	2	36	0.71	1.47	0.63	0.52	0.40	0.00
Q22	Percentages	0.74	3	25	0.74	1.34	0.77	0.60	0.28	0.18
Q23	Trigonometry and Pythagoras' Theorem	0.81	3	27	0.81	2.44	0.56	0.32	0.00	0.00
Q24	Polygons	1.10	4	28	1.10	2.75	0.91	0.76	0.12	0.00
Q25	Measures	0.78	3	26	0.78	1.50	0.84	0.52	0.28	0.18
		<b>41.44</b>	<b>80</b>	<b>52</b>	<b>41.44</b>	<b>61.88</b>	<b>45.87</b>	<b>35.44</b>	<b>25.44</b>	<b>14.33</b>

**Suggested Grade Boundaries based on performance of students in Summer 2018**

5	4	3	2	1
54	41	30	19	13