

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

Question	Working	Answer	Mark	Notes
1		0.8	1	B1
2		$\frac{7}{9}$	1	B1
3		4.013, 4.02, 4.807, 4.81, 4.85	1	B1
4	$0.65 + 0.72$ or $\frac{65}{100} + \frac{72}{100}$ or $\frac{13}{20} + 0.72$ oe	1.37	2	M1 or $\frac{137}{100}$ A1

Question	Working	Answer	Mark	Notes
5	a	African buffalo	1	B1 accept buffalo or 725
	b	100	1	B1 accept (one) hundreds
	c	1192	1	B1 accept -1192
	d	$800 \times 20 \div 1000$	16	2 M1 ft for any number in the table A1
6	$70 + 100 + 70 + 100 = 340$ “340” $\times 3$	1020	3	M1 for working out the perimeter M1 dep on first M mark A1

Question	Working	Answer	Mark	Notes
7	a	$\frac{4}{15}$	1	B1 Do not accept 4:15 but accept 4/15
	b	4 squares shaded	1	B1

Question	Working	Answer	Mark	Notes
8	a	$x = -3$ drawn	1	B1 accept unlabelled
	b	$(2.5, 3)$	2	M1 or one coordinate correct A1
	c	$(2, -1)$	2	B2 (B1 D placed correctly on the grid)
9	a	64	1	B1
	b	$20 + 8 = 28$ $28 \div 4$	2	M1 for $+8$ or $\div 4$ A1
	c	10	2	M1 for 8×5 or 40 A1
10	a	4, 7, 5, 4	2	M1 attempt to find frequencies (at least 2 correct) A1 fully correct
	b	Completed bar chart	3	M1 for 4 bars + labels on bars A1 correct heights ft a completed table A1 fully correct ft a completed table inc label on y axis Allow different widths of bars, gaps or no gaps between bars

Question	Working	Answer	Mark	Notes
11	a	y^3	1	B1
	b	$6cd$	1	B1
	c	k	1	B1 accept $1k$
12	a	Alto Campoo	1	B1 Do not accept -8
	b		1	B1
	c	$(-7) - 1800 \div 300$	-13	2 M1 for $\pm 1800 \div 300$ or ± 6 A1
13	a	$\frac{10}{20}$	1	B1 Accept $0.5, \frac{1}{2}, \frac{5}{10}, 50\%$
	b	$\frac{3}{20}$	1	B1 Accept $0.15, 15\%$
	c	$\frac{9}{20+1+2+2}$ or $\frac{7}{20}$ $\frac{9}{25} = 0.36$ and $\frac{7}{20} = 0.35$	Adam with reason	3 M1 for at least one probability M1 for both correct probabilities A1 Adam with 0.36 and 0.35 clearly seen oe

Question	Working	Answer	Mark	Notes		
14	$180 - 124 = 56$ $56 \div 2$	28	3	M1 M1 A1		
15	$\frac{21}{24} - \frac{4}{24}$	Shown	2	M1 for 2 correct fractions with a common denominator A1 for $\frac{17}{24}$ from correct working e.g. $\frac{34}{48} = \frac{17}{24}$		
16	a	$15 - 8 \times (-4)$ or $15 + 32$	47	2	M1 A1	
	b	$18 = 4p - 24$	10.5	2	M1 A1 oe	M1 $\frac{18}{4} = p - 6$ A1 oe

Q	Working	Answer	Mark	Notes
17	$20 \times 14 (= 280)$	460	4	M1
	$\frac{20+16}{2} \times (24-14) (= 180)$			M1
	“280” + “180”			M1 (dep) on at least one of the previous M marks
				A1
				Total 4 marks
	Alternative scheme 1			
	$(24+14) \div 2 (= 19)$ and $(20-16) \div 2 (= 2)$	460	4	M1
	$2 \times 19 (= 38)$ and $16 \times 24 (= 384)$			M1
	“38” + “38” + “384”			M1 (dep) on at least one of the previous M marks
				A1
				Total 4 marks
	Alternative scheme 2			
	$20 \times 24 (= 480)$	460	4	M1
	$(20-16) \div 2 (= 2)$ and $24 - 14 (= 10)$ $2 \times 10 = 20$			M1
	“480” – “20”			M1 (dep) on at least one of the previous M marks
				A1
				Total 4 marks

Question	Working	Answer	Mark	Notes
18 (a)		Correct R (5,6), (3,6), (3,5)	2	B2 fully correct If not B2 then B1 for correct orientation of R but in wrong position
(b)		Correct T (2,-1), (2,-3), (1,-3)	1	B1
(c)	Enlargement	Correct description	2	M1 for enlargement oe
	Scale factor 3 and centre the origin			A1 allow SF (=) 3, allow O
				NB Award 0 marks if more than transformation
				Total 5 marks

Question	Working	Answer	Mark	Notes
19 (a)	$3c - 21 + 6c + 8$	$9c - 13$	2	M1 For 3 or 4 terms correct A1
(b)	$x^2 - 2x + 7x - 14$	$x^2 + 5x - 14$	2	M1 For 3 correct terms or for 4 correct terms ignoring signs or for $x^2 + 5x + k$ for any non-zero value of k or for $\dots + 5x - 14$ A1
(c)		$7y(4y - 3)$	2	B2 B1 for $y(28y - 21)$ or $7(4y^2 - 3y)$ or $7y(4y + k)$ or $7y(ay - 3)$
				Total 6 marks

Question	Working	Answer	Mark	Notes								
20	For example,	No + reason	2	M1 for evaluating E correctly for any value of n								
	<table border="1"> <thead> <tr> <th>n</th> <th>E</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>7</td> </tr> <tr> <td>2</td> <td>11</td> </tr> <tr> <td>3</td> <td>17</td> </tr> <tr> <td>4</td> <td>25</td> </tr> <tr> <td>5</td> <td>35</td> </tr> </tbody> </table>				n	E	1	7	2	11	3	17
n	E											
1	7											
2	11											
3	17											
4	25											
5	35											
				A1 for No with E evaluated correctly as a non-prime number								
				Total 2 marks								

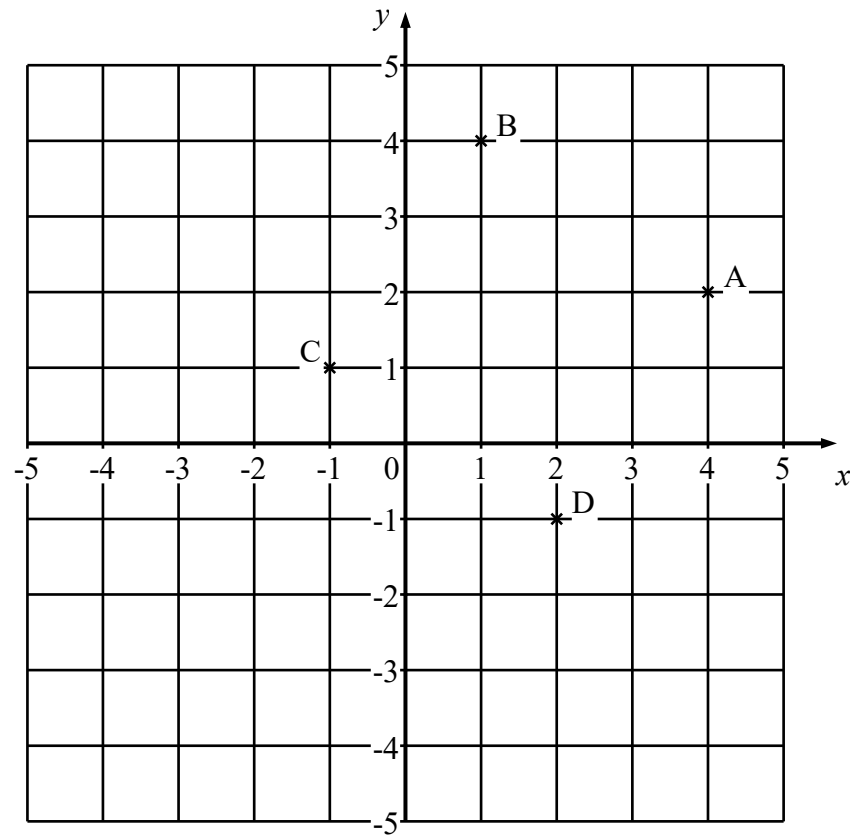
Question	Working	Answer	Mark	Notes
21	Angle $EBG = 180 - 2 \times 65 (= 50)$ or Angle $ABE = 180 - (38 + 65) (= 77)$	27	3	M1
	Angle $ABE = 180 - (38 + 65) (= 77)$ and Angle $ABG = "77" - "50"$			M1 for a complete method to find angle ABG
				A1
				Total 3 marks
	Alternative scheme 1			
	Angle $EBG = 180 - 2 \times 65 (= 50)$ or Angle $EBC = 103$	27	3	M1
	Angle $EBC = 103$ and Angle $ABG = 180 - (103 + "50")$			M1 for a complete method to find angle ABG
				A1
				Total 3 marks

Question	Working	Answer	Mark	Notes
22 (a)		$4n + 2$	2	M1 for $4n + k$ (k may be 0 or absent) oe A1 oe e.g $6 + (n - 1)4$
(b)		$4n + 6$	1	B1 oe ft part (a) providing M1 in part (a) is awarded e.g $4(n + 1) + 2$
				Total 3 marks

Question	Working	Answer	Mark	Notes
23 (a)		1.39×10^6	1	B1
(b)		5×10^{-3}	1	B1
				Total 2 marks

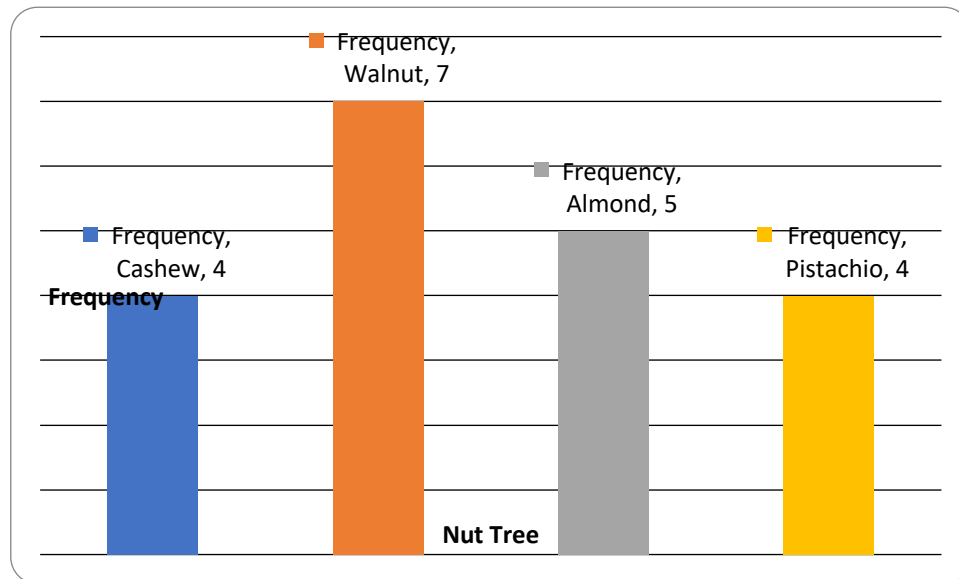
Question	Working	Answer	Mark	Notes
24	$16x = 32$ or $32y = 144$	$(2, 4.5)$	3	M1 for a correct sequence of operations which leads to 1 equation in one unknown, allowing one arithmetical error
	$3 \times '2' + 2y = 15$ or $3x + 2 \times '4.5' = 15$			M1 (dep) substitute found value of one variable in one equation
				A1
				Total 3 marks

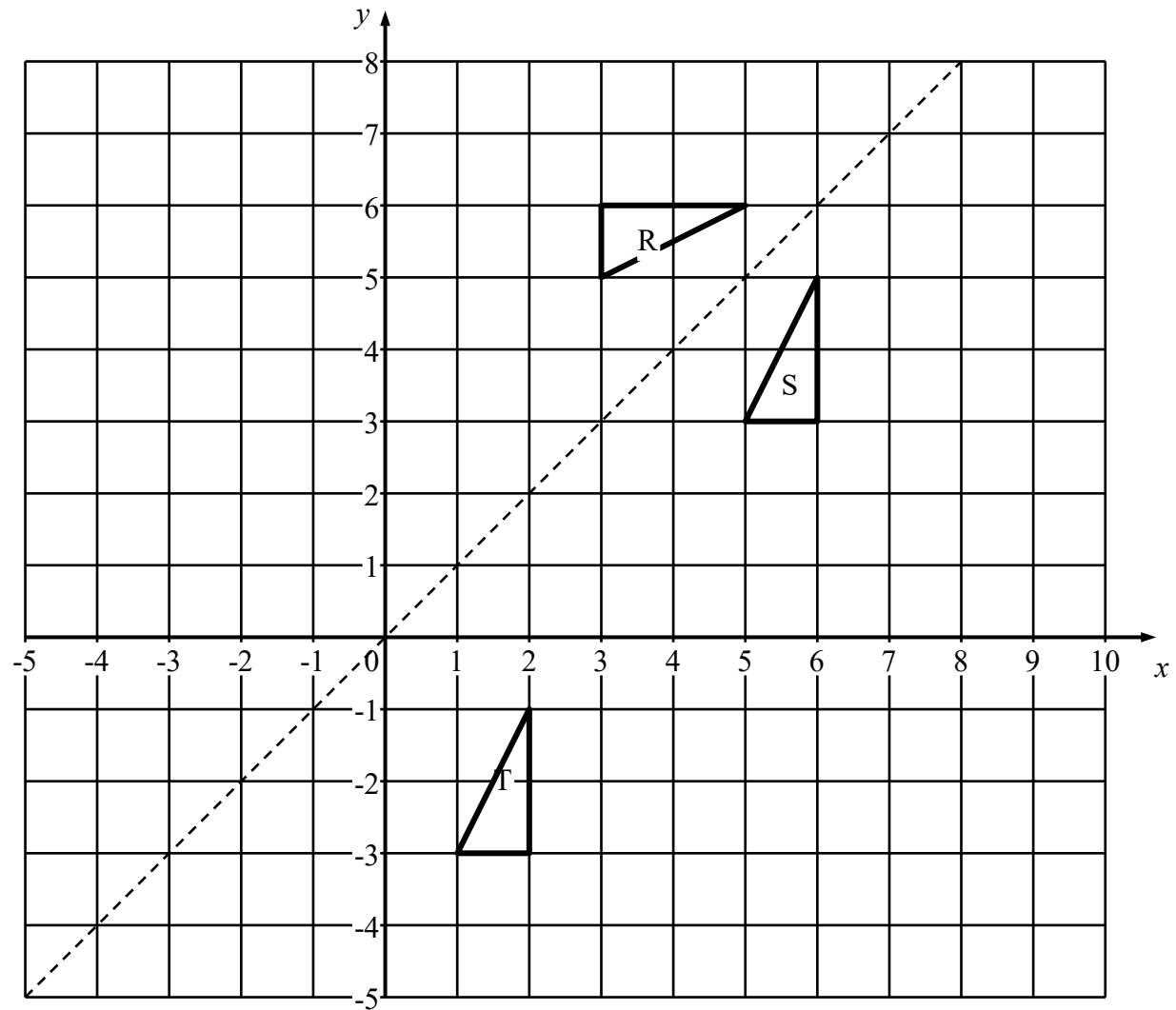
8



10

Nut tree	Frequency
Cashew	4
Walnut	7
Almond	5
Pistachio	4





Question	Skill tested	Mean score	Max score	Mean %	Mean score of students achieving gade:					
					ALL	5	4	3	2	1
Q01	Fractions	0.96	1	96	0.96	1.00	0.95	1.00	0.92	0.82
Q02	Fractions	0.92	1	92	0.92	0.97	0.95	0.92	0.88	0.73
Q03	Decimals	0.66	1	66	0.66	1.00	0.91	0.60	0.16	0.00
Q04	Fractions	1.29	2	65	1.29	1.75	1.51	1.20	0.88	0.18
Q05a	Integers	0.99	1	99	0.99	0.97	0.98	1.00	1.00	1.00
Q05b	Integers	0.83	1	83	0.83	0.91	0.88	0.72	0.88	0.55
Q05c	Integers	0.97	1	97	0.97	0.97	1.00	1.00	1.00	0.73
Q05d	Applying number	1.75	2	88	1.75	1.94	1.81	2.00	1.52	0.91
Q06	Mensuration of 2D shapes	1.49	3	50	1.49	2.62	1.60	1.32	0.52	0.27
Q07a	Fractions	0.95	1	95	0.95	0.97	0.98	1.00	0.88	0.82
Q07b	Percentages	0.93	1	93	0.93	1.00	0.95	0.96	0.88	0.64
Q08a	Graphs	0.45	1	45	0.45	0.69	0.60	0.44	0.04	0.09
Q08b	Graphs	1.09	2	55	1.09	1.47	1.23	1.00	0.64	0.64
Q08c	Graphs	1.51	2	76	1.51	1.97	1.77	1.32	1.00	0.73
Q09a	Function notation	0.83	1	83	0.83	0.97	0.91	0.88	0.76	0.18
Q09b	Function notation	1.39	2	70	1.39	1.78	1.60	1.52	0.92	0.18
Q09c	Function notation	1.71	2	86	1.71	1.97	1.84	1.88	1.48	0.55
Q10a	Graphical representation of data	1.88	2	94	1.88	1.91	1.88	1.88	1.80	1.91
Q10b	Graphical representation of data	2.43	3	81	2.43	2.75	2.47	2.20	2.24	2.27
Q11a	Expressions and formulae	0.73	1	73	0.73	0.75	0.84	0.68	0.64	0.55
Q11b	Expressions and formulae	0.77	1	77	0.77	0.88	0.84	0.72	0.72	0.45
Q11c	Expressions and formulae	0.64	1	64	0.64	0.91	0.70	0.56	0.44	0.27
Q12a	Applying number	0.85	1	85	0.85	0.94	0.95	0.88	0.76	0.36
Q12b	Applying number	0.73	1	73	0.73	0.84	0.79	0.84	0.56	0.27
Q12c	Applying number	1.28	2	64	1.28	1.50	1.56	1.36	0.76	0.55
Q13a	Probability	0.92	1	92	0.92	0.94	0.98	0.96	0.84	0.73
Q13b	Probability	0.86	1	86	0.86	0.97	0.95	0.92	0.64	0.55
Q13c	Probability	1.51	3	50	1.51	2.53	1.86	1.16	0.60	0.09
Q14	Angles[comma] lines and triangles	2.36	3	79	2.36	3.00	2.74	2.16	1.64	1.09
Q15	Fractions	1.20	2	60	1.20	1.84	1.26	0.72	0.84	1.00

Question	Skill tested	Mean score	Max score	Mean %	Mean score of students achieving grade:					
					ALL	5	4	3	2	1
Q16a	Expressions and formulae	1.40	2	70	1.40	1.75	1.63	1.52	0.88	0.45
Q16b	Expressions and formulae	1.21	2	61	1.21	1.81	1.40	1.08	0.76	0.00
Q17	Mensuration of 2D shapes	1.34	4	34	1.34	3.19	1.23	0.76	0.16	0.36
Q18a	Transformation geometry	0.23	2	12	0.23	0.50	0.21	0.16	0.00	0.18
Q18b	Transformation geometry	0.39	1	39	0.39	0.66	0.58	0.20	0.04	0.09
Q18c	Transformation geometry	0.71	2	36	0.71	1.09	0.86	0.56	0.44	0.00
Q19a	Algebraic manipulation	1.36	2	68	1.36	1.84	1.53	1.24	1.04	0.27
Q19b	Algebraic manipulation	1.10	2	55	1.10	1.75	1.30	0.96	0.44	0.18
Q19c	Algebraic manipulation	0.94	2	47	0.94	1.50	1.23	0.72	0.36	0.00
Q20a	Expressions and formulae	0.89	1	89	0.89	0.94	1.00	0.92	0.80	0.45
Q20b	Expressions and formulae	0.49	2	25	0.49	0.88	0.67	0.24	0.08	0.18
Q21	Geometrical reasoning	0.68	3	23	0.68	1.50	0.70	0.36	0.16	0.09
Q22a	Sequences	0.77	2	39	0.77	1.53	0.88	0.40	0.32	0.00
Q22b	Sequences	0.02	1	2	0.02	0.03	0.02	0.00	0.04	0.00
Q23a	Standard form	0.28	1	28	0.28	0.53	0.33	0.20	0.08	0.00
Q23b	Standard form	0.38	1	38	0.38	0.66	0.35	0.36	0.16	0.18
Q24	Simultaneous linear equations	0.71	3	24	0.71	1.69	0.84	0.24	0.00	0.00
		47.78	80	60	47.78	64.56	53.05	43.72	32.60	21.54

Suggested Grade Boundaries based on performance of students in Summer 2018

5	4	3	2	1
58	48	39	27	21