Mark Scheme (Results)

Summer 2018

Pearson Edexcel International GCSE
In Mathematics A (4MA1) Paper 1FR

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General Marking Guidance

- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- Examiners should mark according to the mark scheme not according to their perception of where the grade boundaries may lie.
- There is no ceiling on achievement. All marks on the mark scheme should be used appropriately.
- All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme.
  Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.
- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.
- When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the team leader must be consulted.
- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.
- **Types of mark**
  - M marks: method marks
  - A marks: accuracy marks
  - B marks: unconditional accuracy marks (independent of M marks)
- **Abbreviations**
  - cao – correct answer only
  - ft – follow through
  - isw – ignore subsequent working
  - SC - special case
  - oe – or equivalent (and appropriate)
  - dep – dependent
  - indep – independent
  - eeoo – each error or omission

- **No working**
  If no working is shown then correct answers normally score full marks
  If no working is shown then incorrect (even though nearly correct) answers score no marks.
- **With working**
  If there is a wrong answer indicated on the answer line always check the working in the body of the script (and on any diagrams), and award any marks appropriate from the mark scheme.
  If it is clear from the working that the "correct" answer has been obtained from incorrect working, award 0 marks.
  Any case of suspected misread loses A (and B) marks on that part, but can gain the M marks.
  If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.
  If there is a choice of methods shown, then no marks should be awarded, unless the answer on the answer line makes clear the method that has been used.
  If there is no answer on the answer line then check the working for an obvious answer.
- **Ignoring subsequent work**
  It is appropriate to ignore subsequent work when the additional work does not change the answer in a way that is inappropriate for the question: eg. Incorrect cancelling of a fraction that would otherwise be correct.
  It is not appropriate to ignore subsequent work when the additional work essentially makes the answer incorrect eg algebra.
  Transcription errors occur when candidates present a correct answer in working, and write it incorrectly on the answer line; mark the correct answer.
- **Parts of questions**
  Unless allowed by the mark scheme, the marks allocated to one part of the question CANNOT be awarded in another.

IGCSE Maths - Paper 1FR (1-9) 2018 June Mark scheme

The correct answer, unless clearly, obtained by an incorrect method, should be taken to imply a correct method with the exception of Q24					
Question		**Working**	**Answer**	**Mark**	**Notes**
1	a		African buffalo	1	B1 accept buffalo or 725
	b		100	1	B1 accept (one) hundreds
	c		1192	1	B1 accept −1192
	d	800 × 20 ÷ 1000	16	2	M1 ft for any number in the table A1
2		70 + 100 + 70 + 100 = 340 "340" × 3	1020	3	M1 for working out the perimeter M1 dep on first M mark A1
3	a		$\frac{4}{15}$	1	B1 Do not accept 4:15 but accept 4/15
	b		4 squares shaded	1	B1
4	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
5	a		$x = -3$ drawn	1	B1 accept unlabelled
	b	$\frac{4+1}{2}$, $\frac{2+4}{2}$	(2.5, 3)	2	M1 or one coordinate correct A1
	c		(2, −1)	2	B2 (B1 *D* placed correctly on the grid)
6	a		64	1	B1
	b	20 + 8 = 28 28 ÷ 4	7	2	M1 for +8 or ÷ 4 A1
	c		10	2	M1 for 8 × 5 or 40 A1
7	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
8	a		y^3	1	B1
	b		$6cd$	1	B1
	c		k	1	B1 accept $1k$
9	a		Alto Campoo	1	B1 Do not accept −8
	b		8	1	B1
	c	$(-7) - 1800 \div 300$	−13	2	M1 for $\pm 1800 \div 300$ or ± 6 A1
10	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
11	a		101	1	B1
	b	$\sqrt{1025-1}$	32	2	M1 A1
12		180 − 124 = 56 56 ÷ 2	28	3	M1 M1 A1
13		$\frac{21}{24}-\frac{4}{24}$	Shown	2	M1 for 2 correct fractions with a common denominator A1 for $\frac{17}{24}$ from correct working e.g. $\frac{34}{48}=\frac{17}{24}$
14	a	15 − 8×(−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
15		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 M1 (dep M1) A1 SC:B2 for 334

Q	Working	Answer	Mark	Notes
16	20 × 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)÷2 (= 19) **and** (20−16)÷2 (=2)	460	4	M1
	2 × 19 (= 38) **and** 16 × 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 × 24 (= 480)	460	4	M1
	(20−16)÷2 (=2) **and** 24 − 14 (= 10) 2 × 10 = 20			M1
	"480" – "20"			M1 (dep) on at least one of the previous M marks
				A1
				Total 4 marks

17	(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

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 **OR** correct mid-points **used** for at least 4 products and not added
	"495" ÷ 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
					Total 4 marks

19	675 ÷ (5 + 4) × 5 (= 375)	225	3	M1	M2 675 ÷ (5 + 4) × 3
	"375" ÷ 5 × 3			M1 dep M1	
				A1	
				Total 3 marks	

20	For example, *n* | *E* 1 | 7 2 | 11 3 | 17 4 | 25 5 | 35	No + reason	2	M1	for evaluating *E* correctly for any value of *n*
				A1	for No with *E* evaluated correctly as a non-prime number
				Total 2 marks	

21	Angle *EBG* = 180 – 2 × 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 × 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

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

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

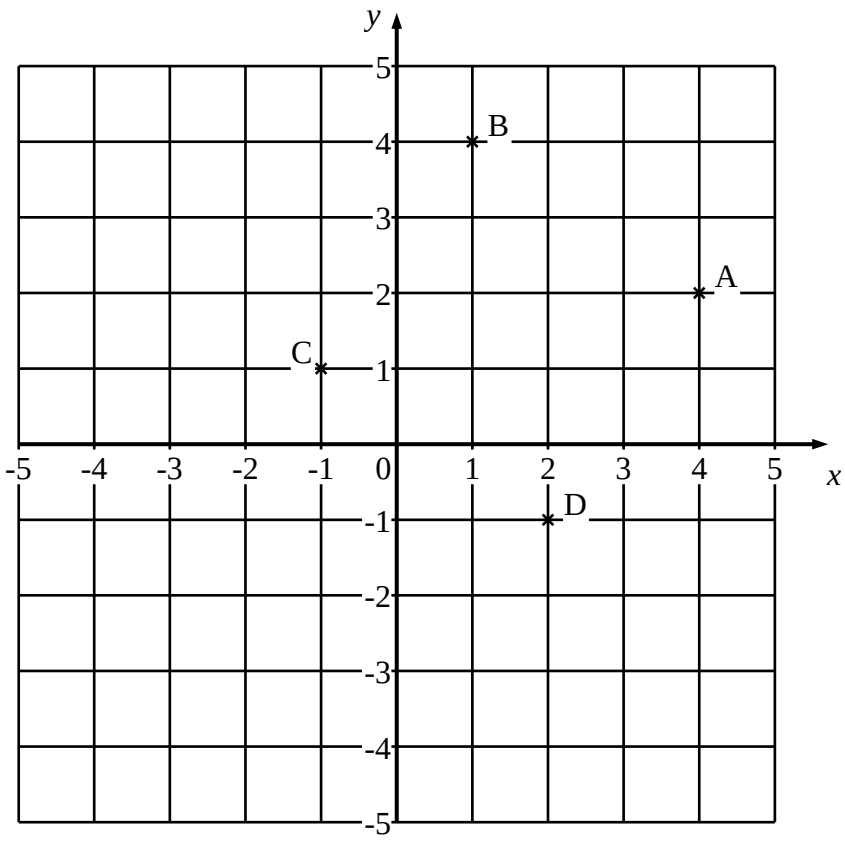
24	$2.5 - 0.6 = 1.9$	2 hours 51 minutes	4	M1	
	$3 \times 12 \times$ "1.9" (= 68.4)			M1	for using length × width × height to find a volume
	"68.4" × 1000 ÷ 400 (= 171 minutes)			M1	for their volume × 1000 ÷ 400
				A1	
					Total 4 marks
	Alternative scheme				
	$250 - 60 = 190$	2 hours 51 minutes	4	M1	
	$300 \times 1200 \times$ "190" (= 6.84×10^7)			M1	for using length × width × height to find a volume
	"6.84×10^7" ÷ 10^6 × 1000 ÷ 400 (= 171 minutes)			M1	for their volume ÷ 10^6 × 1000 ÷ 400
				A1	
					Total 4 marks

25	$16x = 32$ 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

26	72 × 1000 (= 72000) or 72 ÷ 60 (= 1.2) or 72 ÷ 60 ÷ 60 (= 0.02) or 60 ÷ 60 × 1000 (= 3.6)	20	3	M1	for at least **one** of × 1000 or ÷ 60
	$\frac{72}{60\times60}\times1000$			M1	(dep) for a complete method
				A1	
					Total 3 marks

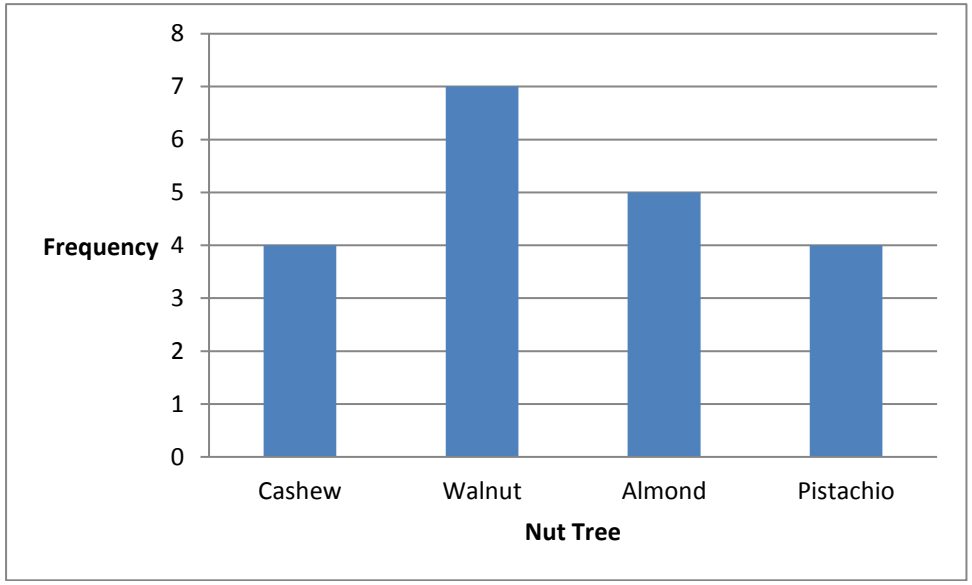
27	(a)	6×25 + 6×45 (= 150 + 270 = 420)	20	4	M1	for 6×25 (=150) or 6×45 (=270)
		"150" + "270" – 350 (= 70) or "420" – 350			M1	
		$\frac{"70"}{350}\times100$			M1	(dep on M2)
					A1	
		Alternative scheme				
		6×25 + 6×45 (= 150 + 270 = 420)	20	4	M1	for 6×25 (=150) or 6×45 (=270)
		$\frac{"420"}{350}\times100=120$			M1	
		"120" – 100			M1	(dep on M2)
					A1	
	(b)	500 000 ÷ 8 (=62 500)	6 250 000	3	M1	
		$500\,000\div8\times100$			M1	for a complete method
					A1	
						Total 7 marks

5

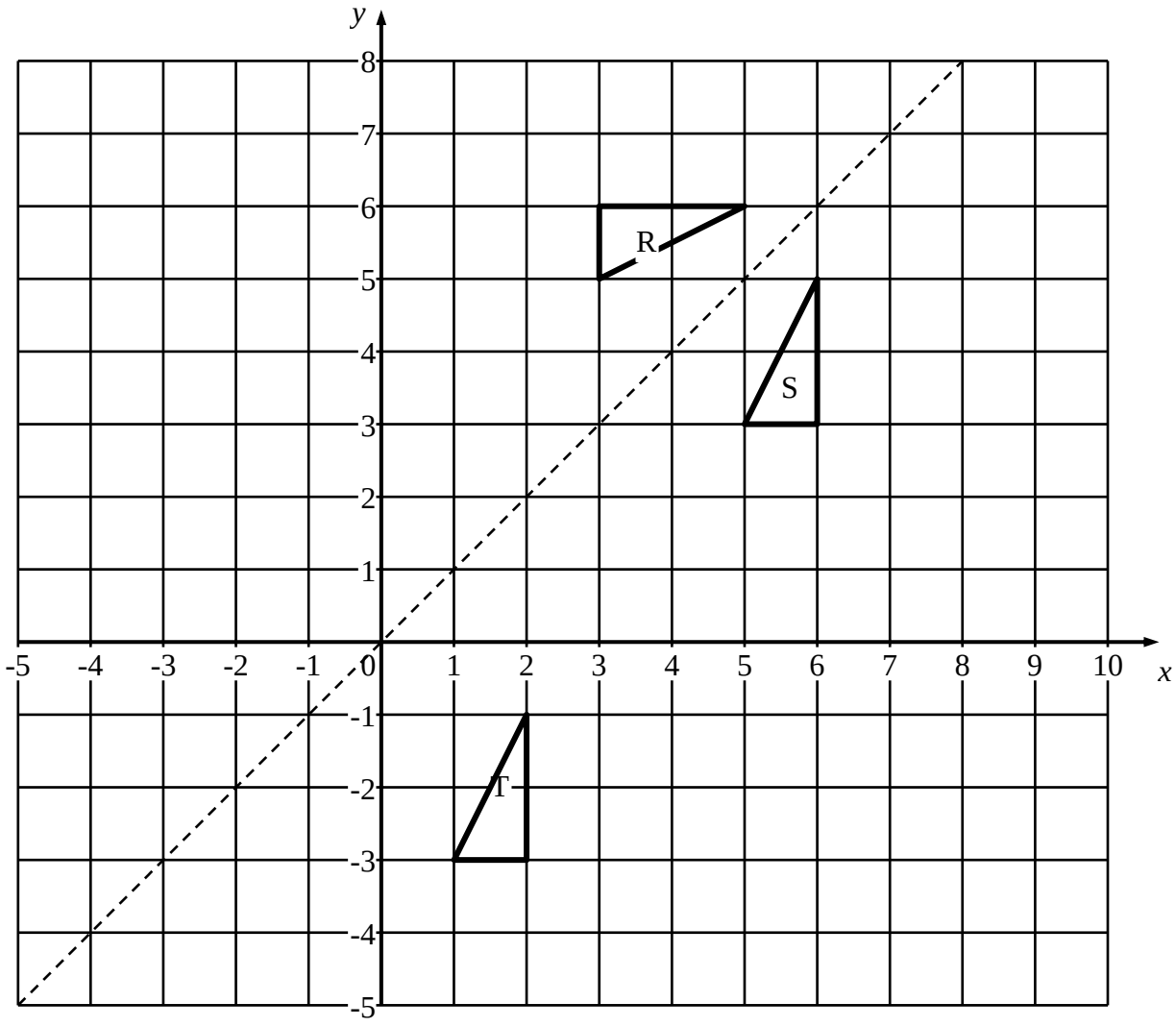


7a

Nut tree		Frequency
Cashew		4
Walnut		7
Almond		5
Pistachio		4



17



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