OCR
RECOGNISING ACHIEVEMENT

OXFORD CAMBRIDGE AND RSA EXAMINATIONS

OCR FUNCTIONAL SKILLS QUALIFICATION IN MATHS AT LEVEL 1

September 2011

The maximum mark for this paper is [60]

This document consists of 11 printed pages

[Turn over

OCR Level 1 Functional Skills Maths
Mark Scheme Referencing

Our ref	Coverage and Range
N1	Understand and use whole numbers and understand negative numbers in practical contexts
N2	Add, subtract, multiply and divide whole numbers using a range of strategies
N3	Understand and use equivalences between common fractions, decimals and percentages
N4	Add and subtract decimals up to two decimal places
N5	Solve simple problems involving ratio, where one number is a multiple of the other
N6	Use simple formulae expressed in words for one-or-two-step operations
G1	Solve problems requiring calculation, with common measures, including money, time, length, weight, capacity and temperature
G2	Convert units of measure in the same system
G3	Work out areas and perimeters in practical situations
G4	Construct geometric diagrams, models and shapes
S1	Extract and interpret information from tables, diagrams, charts and graphs
S2	Collect and record discrete data and organise and represent information in different ways
S3	Find mean and range
S4	Use data to assess the likelihood of an outcome

Process Skills/Skill Standards
R = Representing
A = Analysing
I = Interpreting

Representing	Our Ref
Understand practical problems in familiar and unfamiliar contexts and situations, some of which are non-routine.	R1
Identify and obtain necessary information to tackle the problem	R2
Select mathematics in an organised way to find solutions	R3
Analysing	
Apply mathematics in an organised way to find solutions to straightforward practical problems for different purposes.	A1
Use appropriate checking procedures at each stage.	A2
Interpreting	
Interpret and communicate solutions to practical problems, drawing simple conclusions and giving explanations.	I1

FS Maths L1 September 2011 Marking Guidance

Task 1 – Orchard

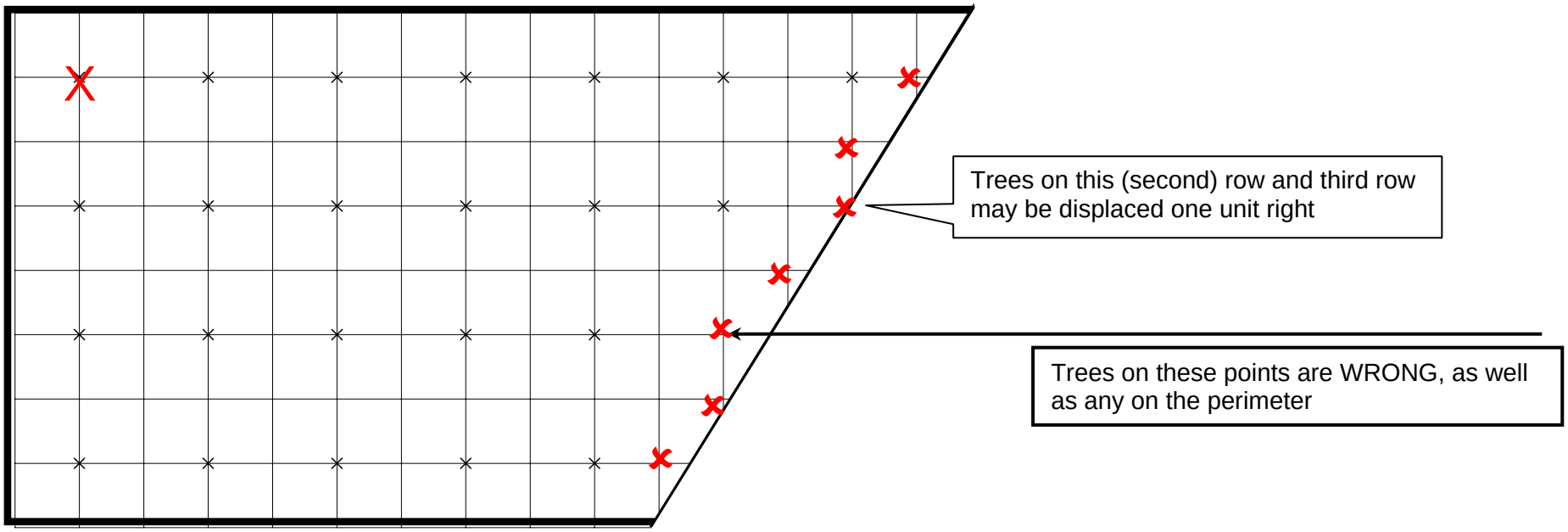
Part	Process	Award	On evidence of	Notes	Skill Standards R	A	I
a(i)	Read table and apply rule for mode	**1**	(£) 11	Do not accept mean (£12.71)	**R2**		
a(ii)	Interpret table	**1**	October				**I1**
b	Use proportions	**3**	**3** 15 apples **and** 10 pears **or** **2** 15 apples **or** 10 pears **or** **1** 5 or division by 5 or grouping into 5s seen		**R3**	**A1**	**I1**
c	Add prices and compare with £150	**3**	**2** 176 **or** **1** Attempt to add prices **without** £20 trees **and 1 from..** Jo spends more than (£)150 or (£)150 is not enough **or** **1** (No) Jo will have to spend (£)176 **or** Jo spends (£)26 extra	**0** for £216 (includes all prices) Allow ft from *their* total for comments	**R1**	**A1**	**I1**
d	Work out cost of tree guards and stakes	**4**	**3** (£)68 **or** **2** (£)75 or 40.8(0) or 45 or 20.5(0) **and** 47.5(0) **or** **1** (£)0.82 or 1.9(0) or 20.5(0) or 47.5(0) or 22.5(0) or 52.5(0) or 28.5(0) or 12.3(0) seen **and** **1** Correct money conventions used in *their* answer	Allow equivalent figs in pence and mark intention 40.8 and 45 from 15 trees ft transcription error **for 2** Allow equivalent figures in pence from 25 or 15 items at low and high prices Includes individual prices	**R2** **R3**	**A1**	**I1**

Part	Process	Award	On evidence of	Notes	Skill Standards R A I
e	Mark tree planting pattern on scale diagram	**6**	**Distance from edge** **2** 20 trees and no tree < 1cm from edge of field **or** **1** 20 trees with trees < 1 cm from edge of field **or** Fewer than 20 trees and none < 1 cm from edge of field **Distance apart** **2** 20 trees and no tree < 2cm from neighbour **or** **1** 20 trees with trees < 2cm from neighbour **or** Fewer than 20 trees and none < 2 cm from neighbour **Number of trees** **1** 23 correctly spaced trees, including given tree **or** Correct count of *their* number of trees **and one from..** Jo can only plant *their* 23 (or *their* 23 – 1) trees **1** Jo cannot plant all her (25) trees *Their* "No" with evidence on grid	**Do not penalise same tree twice for first 4 marks** **Area Method** **1** for Area = 90 to 110 (A) **1** for Area of tree = $4m^2$ (T) **1** for integer answer to A ÷T Must include given tree If a number is quoted then must follow from their diagram	**R1 R2 A1 3I1**
	Checking	**2**	**2** A clear check of a calculation **or** **1** Statement that an answer is reasonable, or 3 correct calculations throughout task **or** **0** Fewer than 3 correct calculations or answers and no checks		**2A2**
	TOTAL	**20**		Totals	**7 6 7**

Expected solution and evidence

3d

	Individual prices	Guard and Stake	Individual (15)	Paired (15)	Individual (25)	Paired (25)
Tree guard low	£0.82	£2.72	£12.30	£40.80	£20.50	£68.00
Stake low	£1.90		£28.50		£47.50	
Tree guard high	£0.90	£3.00	£13.50	£45.00	£22.50	£75.00
Stake high	£2.10		£31.50		£52.50	



Task 2 – On Your Bike

Part	Process	Award	On evidence of	Notes	Skill Standards R	A	I
a	Find how far John should be riding each day	**2**	**2** 7 (miles) **or** **1** 5 (miles) or 35 ÷ 5 attempted	Penalise first use of 7 days as MR (instead of 5) then award full marks (ft) for parts **a** and **b c**.	***R2***	**A1**	
b	Decide if John has reached his target for week 7	**3**	**2** 45 or 9.6 (miles) seen **or** **1** 9 x 5 or 48 ÷ 5 attempted **And** **1** States that target has not been reached AND correct mention of one of 48 or *their* difference (= 3) or 9.6 as daily mileage.	If 7 days then 7 x 9 = 63 63 – 48 = 15 miles extra Statement correct for *their* figures	**R1**	**A1**	**I1**
c	Find the number of miles John needs to ride on Friday	**3**	**3** 11 or 12 miles (on Friday) **2** 60 and 49 seen or +1, -2, -1, +3 → +1 oe seen **1** Attempt (13+10+11+15) or attempt (+1, -2, -1, +3 → +1 oe) or attempt (*their* 60 – *their* 49) or 5 x 12 or 60 or 49 seen	-1, +2, +1, -3 → -1 (Order and attempt middle **2**) If MR 7 days previously, then expect 84 here	**R1**	**A1**	**I1**
d(i)	Show that John rides for 75 minutes on Tuesday	**1**	**1** 60 + 15 (= 75) seen				**I1**
d(ii)	Find John's average time	**5**	**4** (mean =) 69 or (median =) 70 **or** **3** *Their* 414 minutes ÷ 6 or 69 or 71 (from rank order) **or** **2** Attempt to add times in minutes or 414 or Attempt to order times or 68, 69, 71 and 83 **or** **1** Attempt to add times or 2 of 68, 69, 71 or 83 **And** **1** "John is not right" oe based on average.	69 or 71 attempt to find centre Order 48, 68, 69, 71, (75, 83) 5h 114m ÷ 6 ≠ 69 **scores 1 mark.** Must follow an average and be correct for *their* mean or median	**R2** **R3**	**A1**	**I1** **I1**

Part	Process	Award	On evidence of	Notes	Skill Standards R	A	I
d(iii)	Proves who is the better rider	**4**	**Ryan's average** **2** (mean =) 65.5 or 66 or (median =) 67 or time difference = 21 minutes **or** **1** 393 or *their* total ÷ 6 or 49, 63, 66, 68, (73, 74) or Ryan total time 6h 33m or Attempt to compare times on 6 days. **And** **1** "Ryan is better" oe AND reason supported by *their* figures **And** **1** Attempt to comment on consistency (Eg range of performance on individual days) **or** Consistent use of time units throughout	Accept in hours and min Condone 6 33 if meaning clear Follow from *their* answers Condone "On most days Ryan rides faster" Eg On some days there was a big difference in times Ryan range = 25 John range 35	**R2** **R3**	**A1**	**I1**
	Checking	**2**	**2** A clear check of a calculation or **1** Statement that an answer is reasonable, or 3 correct calculations throughout task **or** **0** Fewer than 3 correct calculations or answers and no checks			**A2** **A2**	
	Total	**20**		**Total**	**7**	**7**	**6**

Task 3 –Half Term Trip

Part	Process	Award	On evidence of	Notes	Skill Standards R A I
a	Choose ferry	**2**	**1** (Holyhead) to Dublin **1** 2 hours	Isw or explanation that does not contradict answer	**2R2**
b	Choose time to leave	**3**	**Leaving time from Sheffield** *For 1pm sailing* *for 9am sailing* **2** 8am to 9am oe or 4am to 5am oe **1** Correct time 4 to 5 hours before **wrong** ferry **1** **Reason** for extra time such as, travel delays, check-in, time in hand to avoid rushing etc	Condone Belfast route Morning only eg 0845 Must be wrong ferry. If time is 8-9 or 4-5am and ferry inconclusive, award mark. Award for any sensible reason explicitly stated	**R2** **2I1**
c	Cost of ferry	**3**	**3** 274 or 334 oe **2** figs 274 or figs 334 or 148 or 2 x 46 + 2 x 28 or 188 or 2 x 56 + 2 x 38 **1** 46 or 28 or 126 or 56 or 38 or 146 soi	Condone missing £ £27.4, 3340p or 2740 Reward complete method Do not penalise wrong money notation BUT, if answer in pence, must show p.	**R3** **A1** **I1**

Part	Process	Award	On evidence of	Notes	Skill Standards R	A	I
d	Cost of journey	**5**	**Distance** **2** 434 or 440 [D]	440 from rounding			
			1 217 or 220 [D]	217 may be implied from later work eg 130 and 87 seen with a cost which is later added			
			Fuel cost **3** Cost in range £53.26 – £54 or £26.63 – £27 oe *Their* [D] ÷ 11 x 1.25 (or x 0.11(3636..)) correct	Correct money conventions for answer Correct cost implies distance mark www	**R2** **R3**	**2A1**	**I1**
			2 Attempt *their* number of litres x 1.25 oe	Must be *their* number of litres and not *their* distance			
			1 Attempt ÷ 11 oe or x 1.25	Reward at any stage			

Part	Process	Award	On evidence of	Notes	Skill Standards R	A	I
e	Choose flights	**5**	**Cost of flights** **2** 143.92 or 144 [F] **1** Attempt any price from table (may round) x 4 [F] **Total cost of flights** **2** 275.92 or 276 + any reference to fuel or *Their* [F] +132 + any reference to fuel. **1** 275.92 or 276 seen or *Their* [F] + 132 **Comparison** Any comparison with total ferry cost or highest component of ferry cost if greater than flight cost **1** or Sensible reason – take car as can carry more, ferry would take longer, need to pay parking, need to travel to airport etc	[F] is *their* flight cost Addition must be correct Addition must be correct Eg A ferry cost seen and "flights cheaper" **If no working** Answer based on cost scores **0** Reward other answers appropriately (such as convenience)	**R3**	**2A1**	**2I1**
	Checking	**2**	**2** A clear check of a calculation **or** **1** Statement that an answer is reasonable, or 3 correct calculations that would lead to an acceptable answer throughout the task **or** **0** Fewer than 3 correct calculations or answers and no checks			**2A2**	
	TOTAL	**20**		**Totals**	**7**	**7**	**6**

Expected solution and evidence

(a) Choose ferry to Dublin. This ferry takes 2 hours.
(b) Take 1pm ferry. 4 hours before 1pm is 9am. Leave at least ½ hour earlier than this to allow for check-in or delays enroute.
(c) 2 x 46 + 2 x 28 + 126 = £274
(d) (130 + 87) x 2 = 434 miles. 434 / 11 = 39.45(4545...) = about 40 litres of diesel. Cost 40 x 1.25 = £50
(e) Cost using ferry + 274 + 50 = £324

Cheapest flights = 4 x 15.99 + 4 x 19.99 = £143.92

Add cost car hire £132 Total cost when fly = 143.92 + 132 = £275.92