Ma

KEY STAGE 3

ALL TIERS

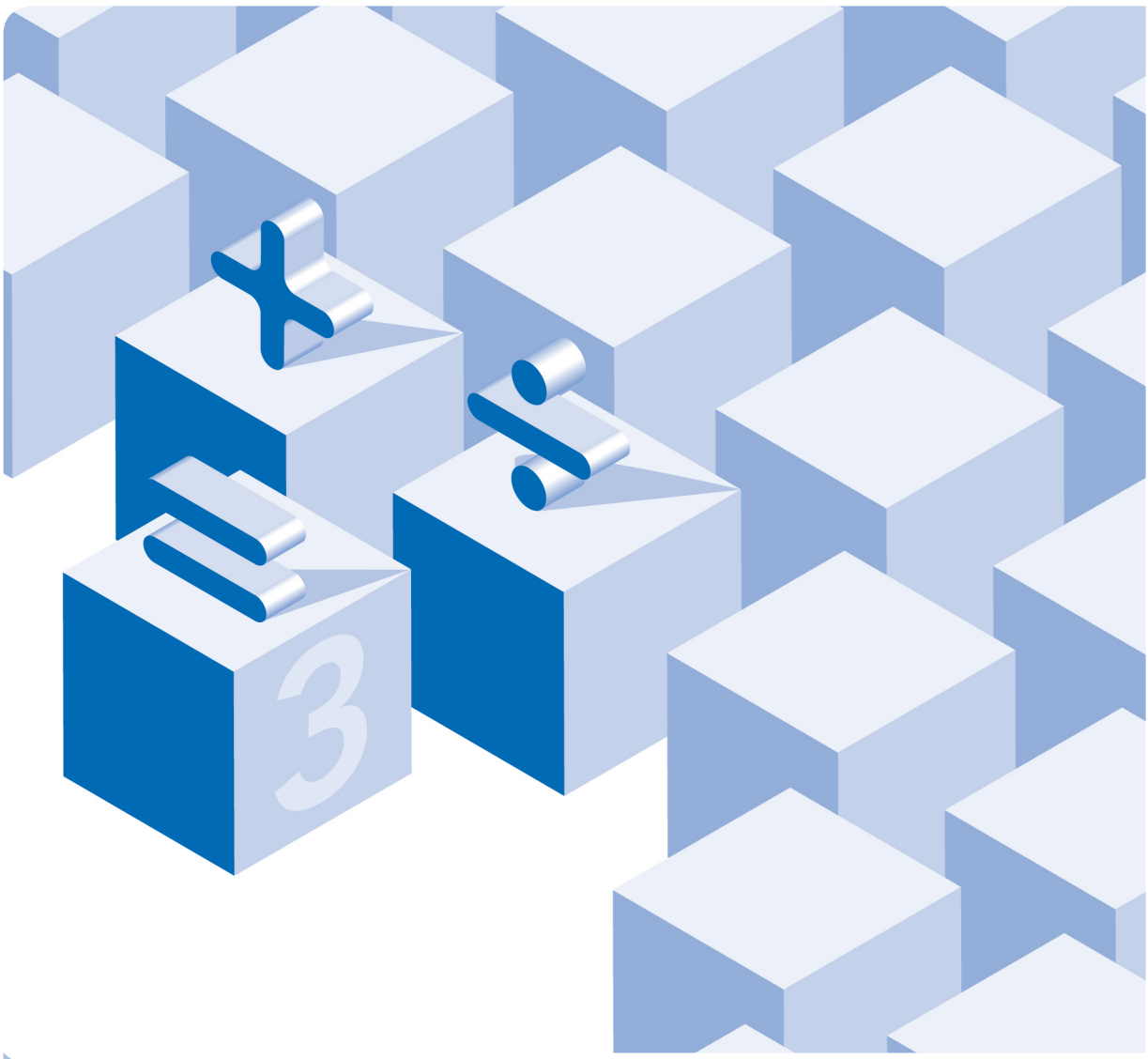
2007

Mathematics tests

Mark scheme

for Paper 2

Tiers 3–5, 4–6, 5–7 and 6–8



National curriculum assessments

Introduction

The test papers will be marked by external markers. The markers will follow the mark scheme in this booklet, which is provided here to inform teachers.

This booklet contains the mark scheme for paper 2 at all tiers. The paper 1 mark scheme is printed in a separate booklet. Questions have been given names so that each one has a unique identifier irrespective of tier.

The structure of the mark schemes

The marking information for questions is set out in the form of tables, which start on page 11 of this booklet. The columns on the left-hand side of each table provide a quick reference to the tier, question number, question part and the total number of marks available for that question part.

The **Correct response** column usually includes two types of information:

- a statement of the requirements for the award of each mark, with an indication of whether credit can be given for correct working, and whether the marks are independent or cumulative
- examples of some different types of correct response, including the most common.

The **Additional guidance** column indicates alternative acceptable responses, and provides details of specific types of response that are unacceptable. Other guidance, such as when 'follow through' is allowed, is provided as necessary.

Questions with a *UAM* element are identified in the mark scheme by an encircled *U* with a number that indicates the significance of using and applying mathematics in answering the question. The *U* number can be any whole number from 1 to the number of marks in the question.

For graphical and diagrammatic responses, including those in which judgements on accuracy are required, marking overlays have been provided as the centre pages of this booklet.

The 2007 key stage 3 mathematics tests and mark schemes were developed by the Test Development team at Edexcel.

General guidance

Using the mark schemes

Answers that are numerically equivalent or algebraically equivalent are acceptable unless the mark scheme states otherwise.

In order to ensure consistency of marking, the most frequent procedural queries are listed on the following two pages with the prescribed correct action. This is followed by further guidance relating specifically to the marking of questions that involve money, negative numbers, algebra, time, coordinates or probability. Unless otherwise specified in the mark scheme, markers should apply the following guidelines in all cases.

What if …

The pupil's response does not match closely any of the examples given.	Markers should use their judgement in deciding whether the response corresponds with the statement of requirements given in the **Correct response** column. Refer also to the **Additional guidance**.
The pupil has responded in a non-standard way.	Calculations, formulae and written responses do not have to be set out in any particular format. Pupils may provide evidence in any form as long as its meaning can be understood. Diagrams, symbols or words are acceptable for explanations or for indicating a response. Any correct method of setting out working, however idiosyncratic, is acceptable. Provided there is no ambiguity, condone the continental practice of using a comma for a decimal point.
The pupil has made a conceptual error.	In some questions, a method mark is available provided the pupil has made a computational, rather than conceptual, error. A computational error is a 'slip' such as writing $4 \times 6 = 18$ in an otherwise correct long multiplication. A conceptual error is a more serious misunderstanding of the relevant mathematics; when such an error is seen no method marks may be awarded. Examples of conceptual errors are: misunderstanding of place value, such as multiplying by 2 rather than 20 when calculating 35×27; subtracting the smaller value from the larger in calculations such as $45 - 26$ to give the answer 21; incorrect signs when working with negative numbers.
The pupil's accuracy is marginal according to the overlay provided.	Overlays can never be 100% accurate. However, provided the answer is within, or touches, the boundaries given, the mark(s) should be awarded.
The pupil's answer correctly follows through from earlier incorrect work.	Follow through marks may be awarded only when specifically stated in the mark scheme, but should not be allowed if the difficulty level of the question has been lowered. Either the correct response or an acceptable follow through response should be marked as correct.
There appears to be a misreading affecting the working.	This is when the pupil misreads the information given in the question and uses different information. If the original intention or difficulty level of the question is not reduced, deduct one mark only. If the original intention or difficulty level is reduced, do not award any marks for the question part.
The correct answer is in the wrong place.	Where a pupil has shown understanding of the question, the mark(s) should be given. In particular, where a word or number response is expected, a pupil may meet the requirement by annotating a graph or labelling a diagram elsewhere in the question.

What if …

<table>
<tr><td>The final answer is wrong but the correct answer is shown in the working.</td><td colspan="2">Where appropriate, detailed guidance will be given in the mark scheme and must be adhered to. If no guidance is given, markers will need to examine each case to decide whether:</td></tr>
<tr><td></td><td>■ the incorrect answer is due to a transcription error</td><td>If so, award the mark.</td></tr>
<tr><td></td><td>■ in questions not testing accuracy, the correct answer has been given but then rounded or truncated</td><td>If so, award the mark.</td></tr>
<tr><td></td><td>■ the pupil has continued to give redundant extra working which does not contradict work already done</td><td>If so, award the mark.</td></tr>
<tr><td></td><td>■ the pupil has continued, in the same part of the question, to give redundant extra working which does contradict work already done.</td><td>If so, do not award the mark. Where a question part carries more than one mark, only the final mark should be withheld.</td></tr>
<tr><td>The pupil's answer is correct but the wrong working is seen.</td><td colspan="2">A correct response should always be marked as correct unless the mark scheme states otherwise.</td></tr>
<tr><td>The correct response has been crossed or rubbed out and not replaced.</td><td colspan="2">Mark, according to the mark scheme, any legible crossed or rubbed out work that has not been replaced.</td></tr>
<tr><td>More than one answer is given.</td><td colspan="2">If all answers given are correct or a range of answers is given, all of which are correct, the mark should be awarded unless prohibited by the mark scheme. If both correct and incorrect responses are given, no mark should be awarded.</td></tr>
<tr><td>The answer is correct but, in a later part of the question, the pupil has contradicted this response.</td><td colspan="2">A mark given for one part should not be disallowed for working or answers given in a different part, unless the mark scheme specifically states otherwise.</td></tr>
</table>

Marking specific types of question

Responses involving money

For example: £3.20 £7

Accept ✓	Do not accept ✗
✓ Any unambiguous indication of the correct amount eg £3.20(p), £3 20, £3,20, 3 pounds 20, £3-20, £3 20 pence, £3:20, £7.00	✗ Incorrect or ambiguous indication of the amount eg £320, £320p or £700p
✓ The unit, £ or p, is usually printed in the answer space. Where the pupil writes an answer outside the answer space with **no** units, accept responses that are unambiguous when considered alongside the given units eg with £ given in the answer space, accept 3.20, 7 or 7.00	✗ Ambiguous use of units outside the answer space eg with £ given in the answer space, do not accept 3.20p outside the answer space
✓ Given units amended eg with £ crossed out in the answer space, accept 320p, 700p	✗ Incorrect placement of decimal points, spaces, etc or incorrect use or omission of 0 eg £3.2, £3 200, £32 0, £3-2-0 £7.0

Responses involving negative numbers

For example: –2

Accept ✓	Do not accept ✗
	To avoid penalising the error below more than once within each question, do not award the mark for the *first* occurrence of the error within each question. Where a question part carries more than one mark, only the final mark should be withheld. ✗ Incorrect notation eg 2–

Responses involving the use of algebra

For example: $2 + n$ $n + 2$ $2n$ $\frac{n}{2}$ n^2

Accept ✓	Take care ! Do not accept ✗
✓ Unambiguous use of a different case or variable eg N used for n x used for n	! Unconventional notation eg $n \times 2$ or $2 \times n$ or $n2$ or $n + n$ for $2n$ $n \times n$ for n^2 $n \div 2$ for $\frac{n}{2}$ or $\frac{1}{2}n$ $2 + 1n$ for $2 + n$ $2 + 0n$ for 2 Within a question that demands simplification, do not accept as part of a final answer involving algebra. Accept within a method when awarding partial credit, or within an explanation or general working.
	✗ Embedded values given when solving equations eg in solving $3x + 2 = 32$, $3 \times 10 + 2 = 32$ for $x = 10$
	To avoid penalising the two types of error below more than once within each question, do not award the mark for the *first* occurrence of each type within each question. Where a question part carries more than one mark, only the final mark should be withheld.
✓ Words used to precede or follow equations or expressions eg $t = n + 2$ tiles or tiles = $t = n + 2$ for $t = n + 2$	! Words or units used within equations or expressions eg n tiles + 2 n cm + 2 Do not accept on their own. Ignore if accompanying an acceptable response.
✓ Unambiguous letters used to indicate expressions eg $t = n + 2$ for $n + 2$	✗ Ambiguous letters used to indicate expressions eg $n = n + 2$ for $n + 2$

Responses involving time

A time interval *For example: 2 hours 30 minutes*

Accept ✓	Take care ! Do not accept ×
✓ Any unambiguous indication eg 2.5 (hours), 2h 30 ✓ Digital electronic time ie 2:30	× Incorrect or ambiguous time interval eg 2.3(h), 2.30, 2-30, 2h 3, 2.30 min ! The unit, hours and/or minutes, is usually printed in the answer space. Where the pupil writes an answer outside the answer space, or crosses out the given unit, accept answers with correct units, unless the question has specifically asked for other units to be used.

A specific time *For example: 8:40 am 17:20*

Accept ✓	Do not accept ×
✓ Any unambiguous, correct indication eg 08.40, 8.40, 8:40, 0840, 8 40, 8-40, twenty to nine, 8,40 ✓ Unambiguous change to 12 or 24 hour clock eg 17:20 as 5:20 pm, 17:20 pm	× Incorrect time eg 8.4 am, 8.40 pm × Incorrect placement of separators, spaces, etc or incorrect use or omission of 0 eg 840, 8:4:0, 084, 84

Responses involving coordinates

For example: (5, 7)

Accept ✓	Do not accept ×
✓ Unconventional notation eg (05, 07) (five, seven) ($\overset{x}{5}$, $\overset{y}{7}$) ($x = 5$, $y = 7$)	× Incorrect or ambiguous notation eg (7, 5) ($\overset{y}{7}$, $\overset{x}{5}$) ($5x$, $7y$) (5^x, 7^y) ($x - 5$, $y - 7$)

Responses involving probability

A numerical probability should be expressed as a decimal, fraction or percentage only.

For example: 0.7 $\frac{7}{10}$ *70%*

Accept ✓	Take care ! Do not accept ✗
✓ Equivalent decimals, fractions and percentages eg 0.700, $\frac{70}{100}$, $\frac{35}{50}$, 70.0%	The first **four** categories of error below should be ignored if accompanied by an acceptable response, but should not be accepted on their own. However, to avoid penalising the first **three** types of error below more than once within each question, do not award the mark for the *first* occurrence of each type of error unaccompanied by an acceptable response. Where a question part carries more than one mark, only the final mark should be withheld.
✓ A probability correctly expressed in one acceptable form which is then incorrectly converted, but is still less than 1 and greater than 0 eg $\frac{70}{100} = \frac{18}{25}$	! A probability that is incorrectly expressed eg 7 in 10 7 over 10 7 out of 10 7 from 10
	! A probability expressed as a percentage without a percentage sign.
	! A fraction with other than integers in the numerator and/or denominator.
	! A probability expressed as a ratio eg 7 : 10, 7 : 3, 7 to 10
	✗ A probability greater than 1 or less than 0

Recording marks awarded on the test paper

All questions, even those not attempted by the pupil, will be marked, with a 1 or a 0 entered in each marking space. Where 2m can be split into 1m gained and 1m lost, with no explicit order, then this will be recorded by the marker as 1 0

The total marks awarded for a double page will be written in the box at the bottom of the right-hand page, and the total number of marks obtained on the paper will be recorded on the front of the test paper.

A total of 120 marks is available in each of tiers 3–5, 4–6, 5–7 and 6–8.

Awarding levels

The sum of the marks gained on paper 1, paper 2 and the mental mathematics paper determines the level awarded. Level threshold tables, which show the mark ranges for the award of different levels, will be available on the NAA website *www.naa.org.uk/tests* from Monday 25 June 2007. QCA will also send a copy to each school in July.

Schools will be notified of pupils' results by means of a marksheet, which will be returned to schools by the external marking agency with the pupils' marked scripts. The marksheet will include pupils' scores on the test papers and the levels awarded.

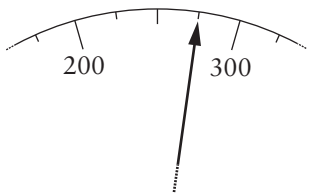
Tier & Question				Rules		
3-5	4-6	5-7	6-8			
1					Correct response	Additional guidance
				1m	11, 14	
				1m	23, 47	
				1m	41, 122	**!** *First new term for each sequence correct with second terms all incorrect or omitted* Mark as 0, 0, 1

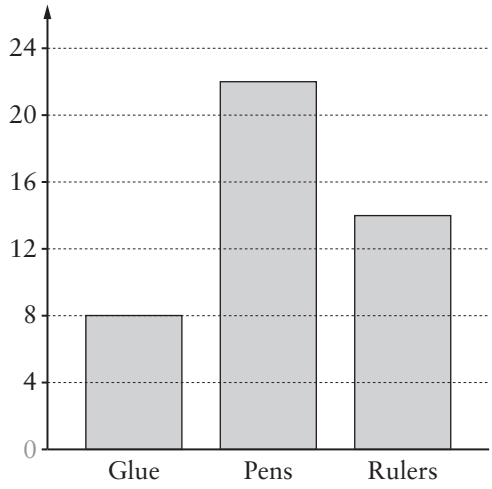
Tier & Question						
3-5	4-6	5-7	6-8			**Homework**
2					**Correct response**	**Additional guidance**
a				**1m**	Monday and Wednesday, in either order	! *Names of days or subjects abbreviated* Accept provided unambiguous eg, for part (a) accept ◆ M and W eg, for part (b) do not accept ◆ M, E and T
b				**1m**	Maths, English and Technology, in any order	
c				**1m**	3	

Tier & Question						
3-5	4-6	5-7	6-8			**Odd one out**
3					**Correct response**	**Additional guidance**
a				**1m**	E	
				1m	D	
b				**1m**	Completes the sentence correctly with a correct property eg ■ … equal sides ■ … lines of symmetry ■ … as the order of rotation symmetry	✓ *Minimally acceptable response* eg ◆ … sides the same ◆ … line symmetry ◆ … rotation symmetry ◆ … identical lines ! *Incorrect or irrelevant statement* Ignore alongside a correct response eg, accept ◆ … equal sides and right angles eg, do not accept ◆ … right angles × *Incomplete or incorrect response* eg ◆ … sides ◆ … equal angles ◆ … squares for the area
				(U1)		

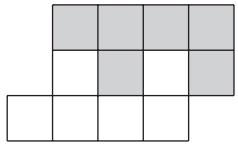
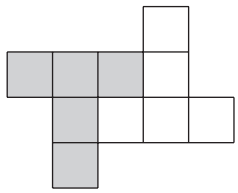
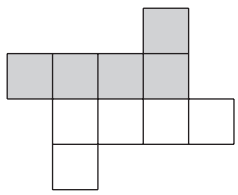
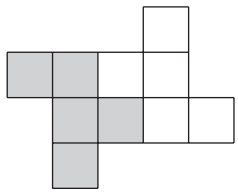
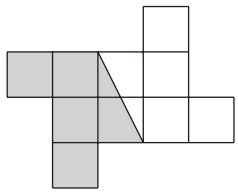
Tier & Question						Hibernation
3-5	4-6	5-7	6-8			
4					Correct response	Additional guidance
a				1m	*5*	✓ *Value qualified* eg • About 5 ! *Value inaccurate* Accept values between 4.9 and 5.1 inclusive, or between 4 months 27 days and 5 months 3 days inclusive
b				1m	Indicates Yes and gives a correct explanation The most common correct explanations: State or imply that they sleep for more than 6 months eg ■ They sleep for $6\frac{1}{2}$ months, which is more than half of 12 ■ Half a year is 6 months but they sleep for just over 6 months	✓ *Minimally acceptable explanation* eg • $6\frac{1}{2}$ months • Just over 6 months • More than 6 boxes are shaded • November to May is six months and then half of October • Half a month more ! *Exact value given* Accept values between 6.4 and 6.6 months inclusive, or between 6 months 12 days and 6 months 18 days inclusive eg, accept • 6 months and 2 weeks × *Incomplete or incorrect explanation* eg • They sleep for more than half the year • They sleep from halfway through October to the end of April • Half a year is 6 months but they sleep for 7 months • $6\frac{1}{2}$
					Refer to the area shaded or unshaded and its relation to the whole circle eg ■ More than halfway round the circle is shaded ■ The white bit for dormice doesn't reach round half the circle	✓ *Minimally acceptable explanation* eg • More than halfway round • More than half the chart is shaded • More is shaded than unshaded × *Incomplete explanation* eg • It shows more shaded months
					U1	

Tier & Question					Concert	
3-5	4-6	5-7	6-8			
5					**Correct response**	**Additional guidance**
a				**1m**	£ 98.35	
b				**2m** *or* **1m** U1	5 Shows the digits 8225 or Shows or implies a complete correct method with not more than one error, even if their final answer is not an integer or is rounded or truncated eg ■ (155.75 – 3 × 24.50) ÷ 16.45 ■ 73.5 + 16.45 + 16.45 + 16.45 + 16.45 + 16.45 = 155.75	

Tier & Question					Cake	
3-5	4-6	5-7	6-8			
6					**Correct response**	**Additional guidance**
a				**1m**	450	
b				**1m**	Indicates the correct position on the scale, ie  	✓ *Unambiguous indication* ! *Inaccurate indication* Accept indications that are closer to 275 than either 250 or 300
c				**1m**	2pm or 14:00	× *Time ambiguous or incorrect* eg • 2 o'clock • 14:00am
d				**1m**	Indicates Cylinder, ie 	

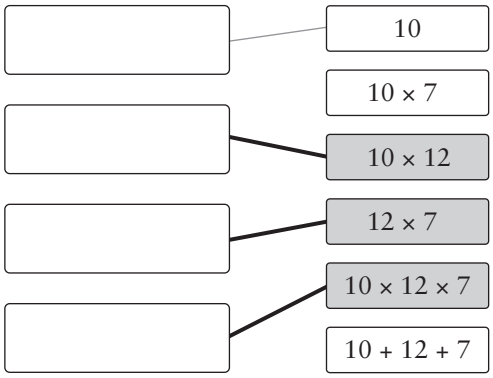
Tier & Question						
3-5	4-6	5-7	6-8			**Bar chart**
7					**Correct response**	**Additional guidance**
				2m	Completes all labels for both axes correctly, ie 	✓ *Unambiguous indication of item names* eg, for Glue • G
				or		
				1m	Completes at least two labels on the vertical axis correctly	
				U1		

Tier & Question						
3-5	4-6	5-7	6-8			**Coordinates**
8	**1**				**Correct response**	**Additional guidance**
a	a			**1m**	Gives A as (0, 6)	
				1m	Gives C as (4, 3)	! *Answers for A and C transposed but otherwise completely correct* If this is the only error, ie gives A as (4, 3) and gives C as (0, 6), mark as 0, 1
b	b			**1m**	Indicates point D on the graph at (2, 7)	! *Point inaccurate, not labelled or marked only with the letter D* Condone any unambiguous indication within 2mm of the correct intersection of the grid

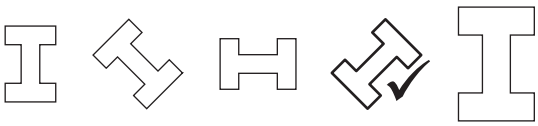
Tier & Question					Fitting tiles	
3-5	4-6	5-7	6-8			
9	2				**Correct response**	**Additional guidance**
a	a			**1m**	Indicates correctly two congruent F-tiles on the diagram eg ■ 	! *Tile not shaded or inaccurately indicated* Accept provided the pupil's intention is clear and there is no ambiguity × *Tiles overlapping*
b	b			**1m**	Indicates two congruent tiles on the diagram eg ■  ■  ■  ■ 	
				1m (U1)	Indicates two congruent tiles on the diagram, different from any previously credited	

Tier & Question						
3-5	4-6	5-7	6-8		**Names**	
10	**3**				**Correct response**	**Additional guidance**
a	a			**1m**	Claire	✓ *Unambiguous indication of name* eg, for Claire ◆ C
b	b			**1m** (U1)	Gives the names Claire then Tom	

Tier & Question						
3-5	4-6	5-7	6-8		**Leaves**	
11	**4**				**Correct response**	**Additional guidance**
a	a			**1m**	Writes the leaves in the correct order for area, ie Willow — Oak — Beech smallest area — largest area	✓ *Unambiguous indication* eg, for part (a) ◆ W — O — B smallest area — largest area
b	b			**1m**	Writes the leaves in the correct order for perimeter, ie Willow — Beech — Oak smallest perimeter — largest perimeter	! *Order given as largest to smallest for both parts (a) and (b)* Mark as 0, 1 ! *Responses for parts (a) and (b) transposed but otherwise correct* Mark as 0, 1

Tier & Question						
3-5	4-6	5-7	6-8		**Marbles**	
12	5				**Correct response**	**Additional guidance**
				2m	Matches all three questions correctly, ie  	! *Question matched with more than one calculation* For 2m or 1m, do not accept as a correct match
				or		
				1m	Matches any two of the questions correctly	

Tier & Question						
3-5	4-6	5-7	6-8		***a* and *b***	
13	6				**Correct response**	**Additional guidance**
				1m	Gives a pair of numbers for a and b, such that $b = a + 4$ eg ■ $a = 5$ $b = 9$ ■ $a = 1.5$ $b = 5.5$	× *Values embedded* eg ◆ 4 + 5 = 9 ◆ $a = 4 + 5$ $b = 9$
				1m U1	Gives a pair of numbers for a and b, such that $b = a + 4$, different from any previously credited	

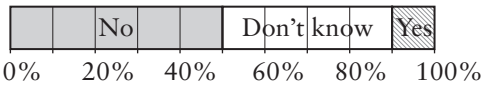
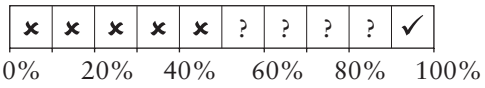
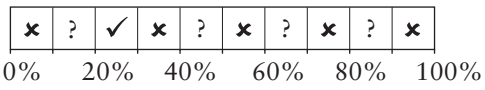
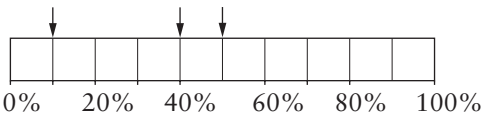
Tier & Question						
3-5	4-6	5-7	6-8		**Turning**	
14	**7**				**Correct response**	**Additional guidance**
				1m	Indicates the correct shape, ie 	

Tier & Question						
3-5	4-6	5-7	6-8		**Party**	
15	**8**				**Correct response**	**Additional guidance**
				2m	Completes all four entries in the table correctly, ie	

4.95	5	24.75
3.20	13	41.60
1.95	10	19.50
	Total:	85.85

		or	
		1m	Completes at least three entries in the table correctly or Completes all four entries correctly with some or all amounts of money given in pence
		U1	

! ***For 1m, follow through***
Where the only error is in the total cost of balloons, for the overall total accept their total cost of balloons + 61.10

Tier & Question					Survey	
3-5	4-6	5-7	6-8			
16	9				**Correct response**	**Additional guidance**
a	a			**1m**	10	× *10%*
b	b			**2m**	Completes the percentage bar chart correctly, ie 50% labelled No 40% labelled Don't know 10% labelled Yes, with bars in any order eg ■ 	✓ *Unambiguous labelling* eg ◆  ! *Lines not ruled or accurate* Accept provided the pupil's intention is clear
				or		
				1m	Indicates sections corresponding to 50%, 40% and 10% but fails to label, labels incorrectly or bars are not continuous eg ■  or Shows or implies the values 50, 40 and 10 eg ■  or Indicates a correct bar for either Don't know or Yes, and labels correctly	

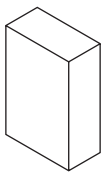
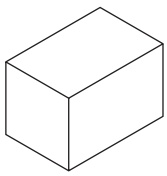
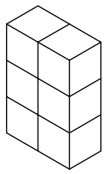
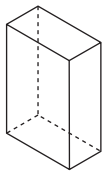
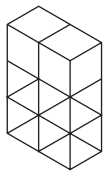
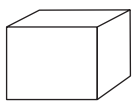
Tier & Question						
3-5	4-6	5-7	6-8		**Frog spawn**	
17	10	1			**Correct response**	**Additional guidance**
a	a	a		**1m**	15th February (1997)	✓ ***Unambiguous or commonly used date notation*** eg ◆ 15/2 ◆ 2/15 [US notation]
b	b	b		**1m** U1	Gives a possible description of the weather eg ■ In 1991 it was colder than the other years ■ It must have been less warm than usual	✓ ***Minimally acceptable response*** eg ◆ Cold ◆ Not warm ◆ It got warmer later ! ***Response implies a preference*** Condone provided the pupil's intention is clear eg, accept ◆ It must have been nasty weather ◆ It was rainy and not sunny ◆ Bad × ***Incomplete or incorrect response*** eg ◆ They were seen later than in other years ◆ Very cold so the eggs were seen quicker

Tier & Question						
3-5	4-6	5-7	6-8		**Simplifying**	
18	11	2			**Correct response**	**Additional guidance**
a	a	a		**1m**	Indicates $4a + 3$, ie 	
b	b	b		**1m**	$8b + 3$	

Tier & Question						
3-5	4-6	5-7	6-8			**Containers**
19	**12**	**3**			**Correct response**	**Additional guidance**
				1m	Indicates A and gives the value 250	

Tier & Question						
3-5	4-6	5-7	6-8			**Triangles**
20	**13**	**4**			**Correct response**	**Additional guidance**
a	a	a		**1m**	Gives the values 60, 60 and 60	✓ *Single answer of 60 given*
b	b	b		**1m**	Gives the values 90, 45 and 45, in any order	

Tier & Question						
3-5	4-6	5-7	6-8			**Spinners**
21	**14**	**5**			**Correct response**	**Additional guidance**
a	a	a		**1m**	Indicates B	
b	b	b		**1m**	Indicates A and D, in either order	

Tier & Question					Faces	
3-5	4-6	5-7	6-8			
22	15	6			**Correct response**	**Additional guidance**
a	a	a		**1m**	8	
b	b	b		**1m**	Draws a solid with 6 faces in any orientation, using the isometric grid correctly eg ■  ■  ■ 	✓ *Some or all internal lines shown* eg ◆  ! *Lines not ruled* Accept provided the pupil's intention is clear ! *Drawing not accurate* Accept vertices within 2mm of the dots of the grid ! *Some or all hidden lines shown* Do not accept unless the lines are clearly identified as hidden lines eg, accept ◆  eg, do not accept ◆  × *Isometric grid not used correctly* eg ◆ 

Tier & Question						
3-5	4-6	5-7	6-8			**Fir trees**
23	**16**	**7**			**Correct response**	**Additional guidance**
a	a	a		**1m**	£ 30(.00)	
b	b	b		**1m** U1	4 and 5, in either order	! *Upper bound taken to be just under 5* For the upper bound, accept values between 4.9 and 5 inclusive

Tier & Question						
3-5	4-6	5-7	6-8			**Rectangles and squares**
24	**17**	**8**			**Correct response**	**Additional guidance**
a	a	a		**1m**	4	! *Value repeated* Accept provided there is no ambiguity eg, for part (a) accept • 4 by 4 eg, for part (a) do not accept • 4 × 4
b	b	b		**1m** U1	5	! *For parts (a) and (b), response of 16 then 20* Mark as 0, 1

Tier & Question						
3-5	4-6	5-7	6-8			**Lemonade**
25	18	9			**Correct response**	**Additional guidance**
				2m	80 p *or* Shows the value 0.8(0) or Shows or implies a complete correct method with not more than one computational error eg ■ 6 × 1.20 – 4 × 1.60 ■ (120 ÷ 4 – 160 ÷ 6) × 24 ■ *7.40 (error)* – 6.40 = 1.00 or Shows the value 720 or 7.2(0) and 640 or 6.4(0)	
				1m		
				U1		

Tier & Question						
3-5	4-6	5-7	6-8			**Three angles**
26	19	10			**Correct response**	**Additional guidance**
				1m	Indicates No and gives a correct explanation eg ■ 24 + 93 + 61 = 178 but it should equal 180 for a straight line ■ 24 + 93 + 61 is 2 degrees too small for a straight line ■ 4 + 3 + 1 = 8, so they couldn't add to 180	✓ ***Minimally acceptable explanation that states or implies the angles should add to 180 or that they add to less than 180*** eg ◆ The angles don't make 180 ◆ They should add to 180 ◆ Too small by 2 ◆ The total ends in 8, but this should be 0 ◆ It totals 178°, so it would be an obtuse angle × ***Incomplete or incorrect explanation*** eg ◆ 24 + 93 + 61 = 178 which is not straight ◆ The angles add to 188 not 180 ◆ The angles add to 178° so it will look straight
				U1		

Tier & Question						Solving
3-5	4-6	5-7	6-8			
27	20	11			Correct response	Additional guidance
				1m	14	! *Incorrect notation* eg, as an answer for the first mark ◆ $x = \times 14$ Penalise only the first occurrence
				1m	13	! *Incomplete processing* eg, as an answer for the first mark ◆ $x = \frac{448}{32}$ Penalise only the first occurrence

Tier & Question				*Marking overlay available*	Newspaper	
3-5	4-6	5-7	6-8			
	21	12	1		Correct response	Additional guidance
				2m	Draws the sectors for Evening newspaper and No newspaper within the smaller tolerance as shown on the overlay and labels correctly	✓ *Unambiguous abbreviation* eg ◆ E for Evening newspaper, N for No newspaper
				or		
				1m	Draws the sectors for Evening newspaper and No newspaper within the larger tolerance as shown on the overlay and labels correctly or Draws the sectors for Evening newspaper and No newspaper within the smaller tolerance as shown on the overlay but fails to label or labels incorrectly or Shows or implies that 5 people are represented by 30° or that 1 person is represented by 6° eg ■ 5 people = 30° ■ 150 ÷ 5 = 30 ■ 360 ÷ 60 = 6 ■ 60, 90 seen	

Tier & Question				Completing rules		
3-5	4-6	5-7	6-8			
	22	13	2		Correct response	Additional guidance
				1m	Gives two correct values in the correct order, and a correct expression in x eg ■ 3, 1, $3x + 1$ ■ 1, 9, $x + 9$ ■ –2, 21, $–2x + 21$	× *For the first mark, given example repeated* ! *Unconventional notation* eg, for $x + 9$ ◆ $1 \times x + 9$ Condone
				1m	Gives two correct values in the correct order, and a correct expression in x eg ■ 4, 3, $4x – 3$ ■ –2, –21, $–2x – –21$ ■ x, 3, $x^2 – 3$	
				1m	Gives two correct values in the correct order, and a correct expression in x eg ■ 2, 11, $\frac{x}{2} + 11$ ■ 0.5, 5, $2x + 5$ (or $\frac{x}{0.5} + 5$) ■ 1, 9, $x + 9$	

Tier & Question						
3-5	4-6	5-7	6-8		**Parallelogram**	
	23	**14**	**3**		**Correct response**	**Additional guidance**
				2m	Gives the correct value with a correct unit eg ■ 35cm^2	
				or		
				1m	Shows the value 35 or Shows a complete correct method with not more than one computational error and with a correct unit for area shown at least once eg ■ 7 × 5 and cm^2 seen ■ (10 – 3) × 5 and cm^2 seen ■ 10 × 5 – 3 × 5 and cm^2 seen ■ 50 – 7.5 – 7.5 and cm^2 seen ■ 4 × 5 + 2 × 1.5 × 5 and cm^2 seen ■ 50 – 2 × 6.5 *(error)* = 37 and cm^2 seen	× ***For 1m, necessary brackets omitted*** eg ◆ 10 – 3 × 5

Tier & Question						
3-5	4-6	5-7	6-8		**Relationships**	
	24	**15**	**4**		**Correct response**	**Additional guidance**
				1m	9	! *Incomplete processing* eg, for the first mark ◆ 10 – 1 eg, for the second mark ◆ 10^2 Penalise only the first occurrence
				1m	100	

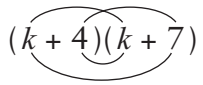
Tier & Question					**Pi**	
3-5	4-6	5-7	6-8			
	25	**16**	**5**		**Correct response**	**Additional guidance**
	a	a	a	**1m**	3.1416	× *Equivalent fractions or decimals*
	b	b	b	**1m**	Indicates $\frac{355}{113}$, ie 	

Tier & Question					*Marking overlay available* **Enlarging**	
3-5	4-6	5-7	6-8			
	26	**17**	**6**		**Correct response**	**Additional guidance**
				2m	Shows a correct enlarged shape with all five vertices within the tolerances as shown on the overlay	! *Lines not ruled or accurate* Accept provided the pupil's intention is clear
				or		! *Construction lines drawn* Ignore, even if incorrect
				1m	Shows at least three vertices within the tolerances as shown on the overlay or Shows a correct enlarged shape with all five vertices within the tolerances as shown on the overlay, but in an incorrect position and/or orientation	

Tier & Question					Values	
3-5	4-6	5-7	6-8			
	27	18	7		Correct response	Additional guidance
	a	a	a	**1m**	15	
	b	b	b	**1m**	$5\frac{1}{2}$ or equivalent	
		c	c	**1m**	Indicates that $e > 5$ eg ■ It has to be higher than 5 ■ Any number over 5	✓ *Minimally acceptable indication* eg ◆ > 5 ◆ Above 5 ◆ More than half of 10 ! *Range includes 5* eg ◆ 5 or over Condone × *Negative values of f excluded* eg ◆ $5 < e \leq 10$ ◆ Between 5 and 10 × *Incorrect indication* eg ◆ e can be 6, 7, 8 and so on ◆ e must be 5.1 or more × *Incomplete indication* eg ◆ $e = 10 - f$ ◆ $f \leq e$

Tier & Question					Travelling by car	
3-5	4-6	5-7	6-8			
	28	19	8		Correct response	Additional guidance
	a	a	a	**1m**	72	
	b	b	b	**1m**	4	
		c	c	**2m**	1.8 or equivalent	! *Answer of 2* For 2m, do not accept unless a correct method or a more accurate value is seen ! *For 2m or 1m, follow through from part (b)* Accept follow through as 18 ÷ (their (b) + 6) or as (their (b) + 14) ÷ (their (b) + 6), rounded or truncated to at least 2 s.f.
				or **1m**	Shows or implies a correct method eg ■ 18 ÷ (4 + 4 + 2) ■ $\frac{18}{10}$	× *For 1m, necessary brackets omitted* eg ◆ 18 ÷ 4 + 4 + 2

Tier & Question					Brackets	
3-5	4-6	5-7	6-8			
	29	20	9		Correct response	Additional guidance
		a	a	**1m**	Gives a correct explanation The most common correct explanations:	
					Give the correct expansion of the expression eg ■ $3(2a + 1) = 6a + 3$, not $6a + 1$ ■ It should be 2 greater, ie $6a + 3$	✓ *Minimally acceptable explanation* eg ◆ $6a + 3$ ◆ She needs to add 2 × *Incomplete or incorrect explanation* eg ◆ $3(2a + 1) \neq 6a + 1$ ◆ $3(2a + 1) = 6a + 2$ ◆ $3(2a + 1) = 6a + 3$ $= 9a$
					Address the misconception eg ■ Both things in the brackets should be multiplied by 3, but she has forgotten the 1	✓ *Minimally acceptable explanation* eg ◆ 3×1 ◆ All bits need to be multiplied by 3 ◆ You have to multiply everything in the brackets ◆ She hasn't multiplied the 1 × *Incomplete explanation* eg ◆ She hasn't multiplied out the brackets correctly ◆ The 1 is incorrect
					Give a correct counter example eg ■ When $a = 1$ then $3(2a + 1) = 9$, but $6a + 1 = 7$ ■ If a is 2, $3(2 \times 2 + 1) \neq 6 \times 2 + 1$	✓ *Minimally acceptable explanation* eg ◆ When $a = 1$ you get 9 and 7 × *Incomplete explanation* eg ◆ When $a = 1$ you get different answers for each side, so it can't be right

Tier & Question					Brackets (cont)	
3-5	4-6	5-7	6-8			
	29	20	9		**Correct response**	**Additional guidance**
		b	b	**1m**	Gives a correct explanation The most common correct explanations:	
					Give the correct expansion of the expression eg ■ $(k + 4)(k + 7) = k^2 + 11k + 28$, not $k^2 + 28$ ■ He should get $k^2 + 4k + 7k + 28$ ■ He has missed out $4k + 7k$ so it should be $k^2 + 11k + 28$	✓ ***Minimally acceptable explanation*** eg ◆ $k^2 + 11k + 28$ ◆ $k^2 + 4k + 7k + 28$ ◆ $11k$ is missing ◆ There should be $4k$ and $7k$ as well ! ***Correct expression equated to zero*** eg ◆ $k^2 + 11k + 28 = 0$ Condone × ***Incomplete or incorrect explanation*** eg ◆ $(k + 4)(k + 7) \neq k^2 + 28$ ◆ $k^2 + 11k + 28 = k^2 + 39$ ◆ It's $11k$
					Address the misconception eg ■ Both things in the first brackets should be multiplied by both things in the second brackets, but he has done $k \times k$ and 4×7	✓ ***Minimally acceptable explanation*** eg ◆ He hasn't multiplied the 4 or the 7 by k ◆ There should be a k term ◆ It should have been like this:  × ***Incomplete explanation*** eg ◆ There should be 3 terms in the answer ◆ The ks should be added ◆ You have to multiply everything in the second brackets by everything in the first brackets ◆ He hasn't multiplied the first set of brackets by the second set properly
					Give a correct counter example eg ■ When $k = 1$ then $(k + 4)(k + 7) = 40$, but $k^2 + 28 = 29$ ■ If k is 2, $(2 + 4)(2 + 7) \neq 2^2 + 28$	✓ ***Minimally acceptable explanation*** eg ◆ When $k = 1$ you get 40 and 29 × ***Incomplete explanation*** eg ◆ When $k = 1$ you get different answers for each side, so it can't be right

Tier & Question					**Vowels**	
3-5	4-6	5-7	6-8			
	30	**21**	**10**		**Correct response**	**Additional guidance**
			a	**2m**	0.61 or equivalent probability	
				or		
				1m	Shows the digits 61 or Shows the value 0.39 or equivalent probability or Shows or implies a complete correct method with not more than one computational error eg ■ 1 – (0.08 + 0.13 + 0.07 + 0.08 + 0.03) ■ 0.08 + 0.13 + 0.07 + 0.08 + 0.03 = *0.38* *(error)* 1 – 0.38 = 0.62	
			b	**2m**	0.000936 or 9.36×10^{-4}, or equivalent probability	× ***For 2m, 9.36^{-04}***
				or		
				1m	Shows the digits 936 or Shows or implies a complete correct method with not more than one computational error eg ■ 0.13 × 0.08 × 0.09 ■ 9.4×10^{-4}	

Tier & Question						Beams
3-5	4-6	5-7	6-8			
		22	11		Correct response	Additional guidance
				3m	Indicates the 1st way, and gives the correct difference of 1320	
				or		
				2m	Shows the digits 132(0) or Shows the digits 484(0) and 352(0) or Shows or implies correct substitution of all values into the formula and the intention to subtract eg ■ $5 \times 11^2 \times 8 - 5 \times 8^2 \times 11$ ■ $5 \times 11 \times 8(11 - 8)$ ■ 440×3 ■ $5 \times (968 - 704)$ ■ 5×264 or Shows a complete correct method with not more than one computational error, and gives a correct decision for their values eg ■ $5 \times 11^2 \times 8 =$ *4440 (error)* 4440 – 3520 = 920 so 1st way, difference 920	
				or		
				1m	Shows the digits 484(0) or 352(0) or Indicates the 1st way and gives an answer of 264 [the only error is to omit to multiply the substituted values by 5] or Indicates the 1st way and gives an answer of 6600 [the only error is to process $5 \times 11^2 \times 8$ as $(5 \times 11)^2 \times 8$ and $5 \times 8^2 \times 11$ as $(5 \times 8)^2 \times 11$]	

Tier & Question						Car park
3-5	4-6	5-7	6-8			
		23	12		Correct response	Additional guidance
				3m	15	
				or		
				2m	Shows the values 24 and 160 or Shows a correct method with not more than one computational or rounding error eg ■ (208 – 136) ÷ 3 ÷ (240 ÷ 1.50) ■ 208 – 136 = 72, 72 ÷ 3 = *26 (error)*, 26 + 136 = 162 26 ÷ 162 × 100 = 16.25	
				or		
				1m	Shows the value 24 or 160 or Shows a correct method with not more than two computational or rounding errors eg ■ 208 – 136 = *62 (error)*, 62 ÷ 3 = *21 (premature rounding)*, 21 ÷ 160 × 100 = 13.125	
				U1		

Tier & Question						Volume of prisms
3-5	4-6	5-7	6-8			
		24	13		Correct response	Additional guidance
		a	a	1m	120	
		b	b	1m	450	

Tier & Question					*Marking overlay available*	**Straight lines**
3-5	4-6	5-7	6-8			
		25	**14**		**Correct response**	**Additional guidance**
		a	a	**1m**	Draws a different straight line with gradient 1, within the tolerance as shown on the overlay when the *y*-axes are aligned	! *Line short* As the line could be positioned anywhere on the grid, accept lines of at least one diagonal unit in length provided they are within the tolerance as shown on the overlay Responses consisting of longer lines must be entirely within tolerance
		b	b	**1m**	20	
		c	c	**1m**	Gives a correct equation eg ■ $y = 5x + 10$ ■ $5x - y = -10$	! *Unconventional notation* eg ◆ $y1 = 5 \times x + 10$ Condone

Tier & Question					**Two semicircles**	
3-5	4-6	5-7	6-8			
		26	**15**		**Correct response**	**Additional guidance**
				2m	$25\pi + 10$, 88.6, 88.5(…) or 89	! *Value of 88* For 2m, do not accept unless a correct method or a more accurate value is seen
				or		
				1m	Shows one entry from the following list: 25π (or 78.6, 78.5(…), 79) 10π (or 31.(…)) 15π (or 47.(…)) 20π (or 62.8(…), 63) **and** 30π (or 94.(…)) 50π (or 157.(…)) $50\pi + 10$ (or 167.(…)) or Shows or implies a complete correct method with not more than one computational or rounding error eg ■ $\frac{20\pi}{2} + \frac{30\pi}{2} + 30 - 20$ ■ $25 \times 3.14 + 10$ ■ Value of 88, with no correct method or more accurate value seen	
				U1		

Tier & Question						
3-5	4-6	5-7	6-8		**Which pupil?**	
		27	**16**		**Correct response**	**Additional guidance**
				2m	Indicates Class 9A and gives a correct justification The most common correct justifications:	
					Use the proportions of boys in each class, in a form that enables comparison eg ■ $\frac{13}{28} = \frac{169}{364}$ but $\frac{12}{26} = \frac{168}{364}$ ■ You get $\frac{338}{728}$ and $\frac{336}{728}$ ■ $\frac{13}{28} = 0.464(\ldots)$, $\frac{12}{26} = 0.461(\ldots)$ (or 0.462) ■ A gives 46.4% and B gives 46.2% ■ $28 \div 13 = 2.15(\ldots)$ $26 \div 12 = 2.16(\ldots)$ (or 2.17) ■ $\frac{13}{28} = \frac{12.07(\ldots)}{26}$ (or $\frac{12.1}{26}$) ■ $\frac{12}{26} = \frac{12.9(\ldots)}{28}$ ■ $13 \times (12 + 14) = 338$, $12 \times (15 + 13) = 336$	✓ *For 2m, minimally acceptable justification* eg ◆ $\frac{169}{364}, \frac{168}{364}$ ◆ 0.464(…), 0.461(…) (or 0.462) ◆ 46.4, 46.2 ◆ $\frac{13}{28} \times 26 > 12$ × *For 2m, incomplete or incorrect justification* eg ◆ $\frac{13}{28} > \frac{12}{26}$ ◆ 13 > 12
					Use the ratios of boys to girls or girls to boys in each class, in a form that enables comparison eg ■ 9A is 0.86(…) boys for every girl, 9B is 0.85(…) ■ 9A is 0.87 boys for every girl, 9B is 0.86 ■ 13 : 15 = 1 : 1.15(…) 12 : 14 = 1 : 1.16(…) (or 1 : 1.17) ■ $\frac{13}{15} = \frac{12.1(\ldots)}{14}$ ■ $\frac{13}{15} = \frac{12}{13.8(\ldots)}$ ■ $\frac{182}{210}, \frac{180}{210}$	✓ *For 2m, minimally acceptable justification* eg ◆ 0.86(…), 0.85(…) ◆ 0.87, 0.86 ◆ 1.15(…), 1.16(…) (or 1.17)
					Reason generally about the differences between the numbers of boys and girls eg ■ A difference of 2 out of the bigger total in 9A is less than out of the smaller total in 9B ■ $\frac{2}{28} < \frac{2}{26}$	✓ *For 2m, minimally acceptable justification* eg ◆ There are two fewer boys than girls in both, but 9A is bigger

Tier & Question				Which pupil? (cont)		
3-5	4-6	5-7	6-8			
		27	16		Correct response	Additional guidance
				or		
				1m	Shows a correct justification but makes an incorrect or no decision eg ■ $\frac{13}{28} = 0.46$, $\frac{12}{26} = 0.46$ so equal or Shows a correct justification with not more than one computational error then makes the correct decision for their values eg ■ $\frac{338}{728}$, $\frac{346}{728}$ *(error)*, 9B indicated	

Tier & Question						Pythagoras
3-5	4-6	5-7	6-8			
		28	17		Correct response	Additional guidance
			a	**1m**	Gives a correct explanation The most common correct explanations:	× *Explanation uses only accurate or scale drawing*
					Show that the values 6, 8 and 10 work using Pythagoras' theorem eg ■ $6^2 + 8^2 = 36 + 64$ $= 100$ $= 10^2$ ■ $10^2 - 8^2 = 100 - 64$ $= 36$ $= 6^2$	✓ *Minimally acceptable explanation* eg ◆ $6^2 + 8^2 = 10^2$ ◆ $36 + 64 = 100$ ◆ The square of the longest side is equal to the sum of the squares of the other two sides × *Incomplete explanation* eg ◆ $6^2 + 8^2$ ◆ $36 + 64$
					State or imply that the triangle is an enlargement of a 3, 4, 5 right-angled triangle eg ■ A 3, 4, 5 triangle is right-angled and $3 \times 2 = 6$, $4 \times 2 = 8$ and $5 \times 2 = 10$ ■ It's just a 3, 4, 5 triangle with the lengths of the sides doubled ■ Because 6, 8 and 10 make a Pythagorean triple	✓ *Minimally acceptable explanation* eg ◆ It's an enlarged 3, 4, 5 triangle ◆ $3 \times 2 = 6$, $4 \times 2 = 8$ and $5 \times 2 = 10$ × *Incomplete explanation* eg ◆ It's like a 3, 4, 5 triangle
			b	**1m**	Gives a correct justification eg ■ $\frac{6.9}{6} \times 8 = 9.2$ ■ $8 \times 1.15 = 9.2$ ■ $9.2 \div 1.15 = 8$ ■ $6.9 \div 9.2 = \frac{3}{4}$ $6 \div 8 = \frac{3}{4}$ ■ $6 \longrightarrow 6.9$ is a 15% increase $8 \times 0.15 = 1.2$ $8 + 1.2 = 9.2$ ■ $\tan^{-1}\left(\frac{8}{6}\right) = 53.1\ldots$ $6.9 \times \tan 53.1\ldots = 9.2$	✓ *Minimally acceptable explanation* eg ◆ $\frac{6.9}{6} \times 8$ ◆ 8×1.15 ◆ $\frac{6.9}{9.2} = \frac{6}{8}$ × *Incomplete explanation* eg ◆ $9.2 \div 1.15$ × *Explanation attempts to use Pythagoras' theorem* eg ◆ $6.9^2 + 9.2^2 = 11.5^2$

Tier & Question						
3-5	4-6	5-7	6-8		**Pythagoras (cont)**	
		28	**17**		**Correct response**	**Additional guidance**
			c	**1m**	Shows the digits 115 eg ■ 1.15×10^8 ■ 115 000 000 ■ 11.5	! ***Zero(s) given after the last decimal place within standard form notation*** Condone eg, for both marks in part (c) accept ◆ 1.150×10^8
				1m	Shows the correct value in standard form, ie 1.15×10^8	

Tier & Question						
3-5	4-6	5-7	6-8		**Expressions**	
			18		**Correct response**	**Additional guidance**
				2m	Gives all three correct expressions, ie $y + 15$ $2y$ $y + 3a$	! ***Expressions unsimplified or use unconventional notation*** eg, for the third expression ◆ $y + a + a + a$ ◆ $1y + 3 \times a$ Condone
				or		
				1m U1	Gives two correct expressions	

Tier & Question						
3-5	4-6	5-7	6-8		**Gorillas**	
			19		**Correct response**	**Additional guidance**
				2m	Gives an integer value between 16 500 and 17 000 inclusive eg ■ 17 000 ■ 16 700 ■ 16 667	! *Gives a non-integer value within the correct range* eg ◆ 16 666.(…) Condone
				or		
				1m	Shows the digits 166(…) or 167 or Shows a complete correct method with not more than one computational or rounding error eg ■ 5000 ÷ 0.3 ■ 5000 ÷ 3 × 10 ■ $\frac{100}{30} \times 5000$ ■ 5000 ÷ 30 = *200 (premature rounding)*, 200 × 100 = 20 000	

Tier & Question						
3-5	4-6	5-7	6-8		**Houses**	
			20		**Correct response**	**Additional guidance**
				2m	2.9 or equivalent	! *Value of 3* For 2m, do not accept unless a correct method or a more accurate value is seen
				or		
				1m	Shows the value 29 or 290 or Shows a complete correct method with not more than one computational or rounding error eg ■ $\frac{2.5 \times 60 + 3.3 \times 30 + 4.1 \times 10}{100}$ ■ (2.5 × 6 + 3.3 × 3 + 4.1) ÷ 10 ■ 150 + 99 + 41 = *300 (error)*, 300 ÷ 100 = 3	× *For 1m, necessary brackets omitted* eg ◆ 2.5 × 6 + 3.3 × 3 + 4.1 ÷ 10

Tier & Question						
3-5	4-6	5-7	6-8		**Subtracting and squaring**	
			21		**Correct response**	**Additional guidance**
				2m	Gives the number as 13 and shows a complete correct method for solving algebraically eg ■ $(x - 25)^2 = x^2 - 25$ $x^2 - 50x + 625 = x^2 - 25$ $50x = 650$ $x = 13$	× *Method used is trial and improvement*
				or		
				1m	Shows a correct expression without brackets that is equivalent to (unknown – 25)^2 eg ■ $x^2 - 50x + 625$ ■ $n^2 - 25n - 25n + 625$ ■ $a \times a - 50 \times a + 25 \times 25$ or Shows a correct equation eg ■ $(x - 25)^2 = x^2 - 25$	
				U1		

Tier & Question						Light years
3-5	4-6	5-7	6-8			
			22		Correct response	Additional guidance
			a	1m	9.43×10^{12}	! *Zero(s) given after the last decimal place within standard form notation* eg, for part (a) • 9.430×10^{12} Condone
			b	1m	$7.35(54) \times 10^{13}$ or 7.36×10^{13} or 7.4×10^{13}	! *For part (b), follow through* Accept 7.8 × their (a) provided this is written correctly in standard form to at least 2 s.f.

Tier & Question						Octagon
3-5	4-6	5-7	6-8			
			23		Correct response	Additional guidance
				2m	$2\sqrt{2}$, $\sqrt{8}$ or 2.8(…)	! *Value of 3* For 2m, do not accept unless a correct method or a more accurate value is seen
				or		
				1m	Shows or implies a correct equation in y eg ■ $y^2 = 8$ ■ $y^2 + y^2 = 4^2$ ■ $2y^2 = 16$ ■ $y \times y + y \times y = 4 \times 4$ ■ $\sqrt{2}y = 4$ ■ 4sin 45 (or 4cos 45)	
				(U1)		

Tier & Question					***x*, *y*, *a* and *b***	
3-5	4-6	5-7	6-8			
			24		**Correct response**	**Additional guidance**
			a	**1m**	$a - b$	! *For part (a), unsimplified expression or unconventional notation* Condone
			b	**2m**	$2b - a$	× *For 2m or 1m, follow through from part (a)*
				or		
				1m	Shows a correct expression for x, even if it is unsimplified, uses unconventional notation or there is subsequent incorrect working eg ■ $2 \times b - a$ ■ $b - (a - b)$ ■ $a - 2(a - b)$ or Shows a complete correct method with not more than one error eg ■ $x + 2y = a$ $2x + 2y = b$ *(error)* $x = b - a$ or Forms two correct equations that would allow elimination of y eg ■ $x + 2y = a$ $2x + 2y = 2b$ or Attempts to solve by substitution and forms a correct equation in x eg ■ $x + a - b = b$ ■ $x + 2(a - b) = a$ ■ $x + 2(b - x) = a$	✓ *For 1m, second equation doubled without the first equation restated* eg ◆ $2x + 2y = 2b$ seen

Index to mark schemes

National Assessment Agency

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