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YEAR

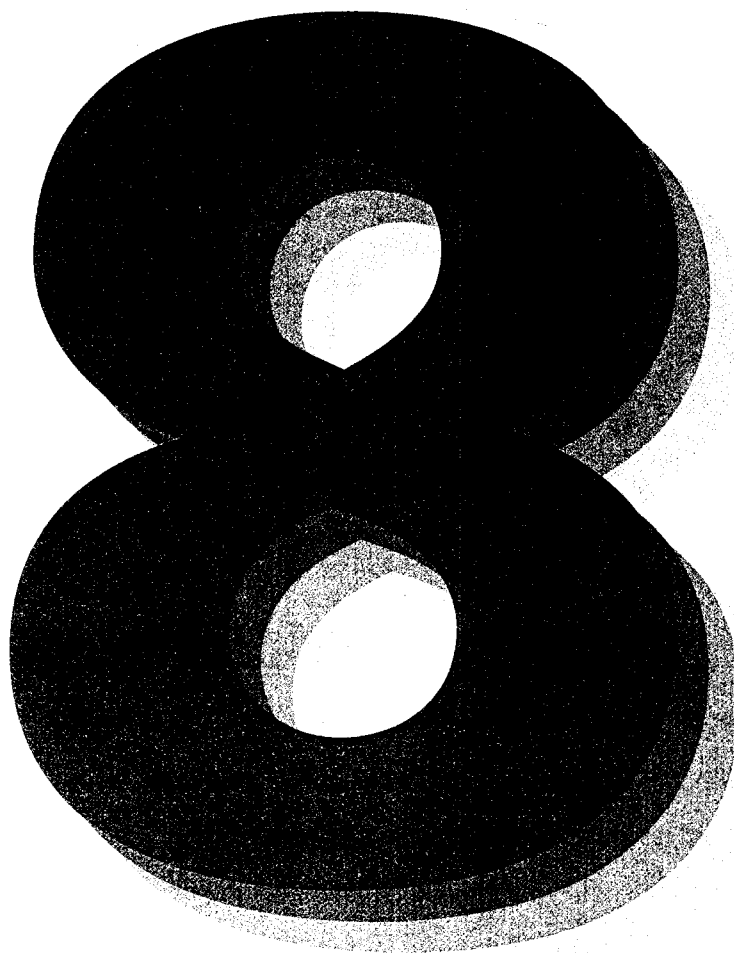
8

LEVELS

4–6

Year 8 optional tests in mathematics

Mark scheme

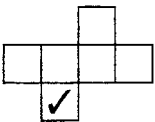
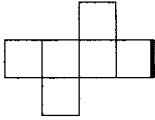
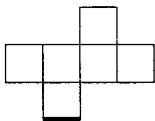


Mark scheme for test A


Question	Thinking shapes		
1		Correct response	Additional guidance
a	1m	Draws a square of side length 4	✓ <i>Lines not ruled or accurate</i> Accept provided the pupil's intention is clear
b	1m	Draws a square of side length 5	

Question	Work out		
2		Correct response	Additional guidance
a	1m	468	
b	1m	54	
c	2m <i>or</i> 1m	<p>6.9</p> <p>Shows 17.4</p> <p>or</p> <p>Subtracts 10.5 correctly from any value with a tenths value of less than 5, but not zero eg</p> <ul style="list-style-type: none"> ■ $22.4 - 10.5 = 11.9$ ■ $16.2 - 10.5 = 5.7$ <p>or</p> <p>Omits to double but subtracts to give the answer 1.8</p>	

Question	Teachers		
3		Correct response	Additional guidance
a	1m	Indicates 'No'	
b	1m	Indicates 'Yes'	
c	1m	Indicates a percentage between 75 and 85 inclusive, or the equivalent decimal or fractional value eg <ul style="list-style-type: none"> ■ 80% ■ 0.83 ■ $\frac{17}{20}$ ■ $\frac{285}{360}$ 	<p>! Value qualified Accept if clearly intended to be within the range eg <ul style="list-style-type: none"> • Just over 75% • About 0.75 Do not accept if outside the range eg <ul style="list-style-type: none"> • Just under 75% </p> <p>! Range of values given Accept if all values are within the acceptable range eg <ul style="list-style-type: none"> • 75 to 85% </p> <p>✗ A percentage without a sign or words indicating the value is a percentage eg <ul style="list-style-type: none"> • 80 </p> <p>✗ Answer is not a proportion eg <ul style="list-style-type: none"> • 280° </p>

Question		Nets	
4		Correct response	Additional guidance
a	1m		✓ <i>Any indication</i> eg • Shading
b	1m	<p>For the first diagram, only the correct edge indicated</p> <p>eg</p> 	✗ <i>Ambiguous indication that could refer to more than one edge</i> eg • Shading
	1m	<p>For the second diagram, only the correct edge indicated</p> <p>eg</p> 	

Question		Magic square										
5		Correct response	Additional guidance									
	2m	<p>All four values correct, ie</p> <table><tr><td>-2</td><td>5</td><td>0</td></tr><tr><td>3</td><td>1</td><td>-1</td></tr><tr><td>2</td><td>-3</td><td>4</td></tr></table>	-2	5	0	3	1	-1	2	-3	4	<p>✓ <i>Zero shown as positive or negative</i></p> <p>! <i>Incorrect notation</i></p> <p>eg</p> <p>• 1 ~</p> <p>Penalise the first occurrence only</p>
-2	5	0										
3	1	-1										
2	-3	4										
	or 1m	<p>At least two values correct</p>										

Question		 See GG – Probability	Shape cards
6		Correct response	Additional guidance
a	1m	$\frac{1}{5}$ or equivalent probability	
b	1m	$\frac{4}{5}$ or equivalent probability	
c	1m	1 or equivalent probability	<p>✓ <i>Probability expressed in words or as a fraction, even if the denominator is 'incorrect', or as a ratio</i></p> <p>eg</p> <ul style="list-style-type: none"> • Certain • $\frac{4}{4}$ • $\frac{5}{5}$ • 4 : 4 <p>✗ <i>Follow through from part (b)</i></p>

Question	Temperatures		
7		Correct response	Additional guidance
	1m	122	✗ <i>Temperature as 4 –</i>
	1m	– 4	
	1m	5	

Question	Thinking percentages		
8		Correct response	Additional guidance
a	1m	75	<p>! <i>Redundant % sign</i> Within this question, penalise the first occurrence only</p> <p>! <i>Units inserted</i> Ignore eg, accept • £75</p>
b	1m	<p>Correct explanation that links the number(s) and the percentage(s) eg</p> <ul style="list-style-type: none"> ■ $10\% = 84$ and $5\% = 42$, $10\% + 5\% = 84 + 42$ so $15\% = 126$ ■ $84 \div 2 = 42$, $84 + 42 = 126$ and $10\% + 5\% = 15\%$ ■ $10\% = 84$, so $5\% = 42$, $84 + 42 = 126$ ■ $1\% = 8.4$, and $8.4 \times 15 = 126$ ■ $100\% = 840$, $15\% = 126$ 	<p>✓ <i>Minimally acceptable explanation</i> eg</p> <ul style="list-style-type: none"> • 5% is 42 • Half of it is 42, half of 10% is 5% • Halve 10% and add on the 42 • 30% is 252 and $3 \times 84 = 252$ <p>✗ <i>Incomplete explanation that fails to link the number to the percentage</i> eg</p> <ul style="list-style-type: none"> • Half of it is 42 • $84 + 42 = 126$ <p>✗ <i>Incomplete explanation that fails to link the percentage to the number</i> eg</p> <ul style="list-style-type: none"> • Halve 10% and add it on
	1m	105	

Question	Beaufort scale		
9		Correct response	Additional guidance
a	1m	8	
b	1m	<p>Explains that the Beaufort scale number for 25 is not uniquely defined</p> <p>eg</p> <ul style="list-style-type: none"> ■ One row ends in 25 but the next row starts there so it could be either one ■ It could be 5 or 6 ■ Because it is neither 5 nor 6 ■ There is not a single value for 25 ■ There are two readings for 25 	<p>✓ <i>Minimally acceptable explanation</i></p> <p>eg</p> <ul style="list-style-type: none"> • There is no value for 25 • There are 2 lines for 25 <p>✗ <i>Explanation that simply describes the graph and does not interpret</i></p> <p>eg</p> <ul style="list-style-type: none"> • That's where it jumps • It's the middle of 2 numbers • It is in the middle of 5 and 6 • No bold lines go through 25 • 25 does not reach any thick black lines • No connecting black line at 25 • There is no line at 25 <p>✗ <i>Explanation implies there should be mid-values</i></p> <p>eg</p> <ul style="list-style-type: none"> • There isn't a 5.5

Question	Missing values																								
10		Correct response	Additional guidance																						
	3m	All values correct, ie																							
		<table><tr><td>x</td><td>$x + 1$</td><td>$2x$</td><td>$2x - 1$</td><td>$2(x - 1)$</td></tr><tr><td>3</td><td>4</td><td>6</td><td>5</td><td>4</td></tr><tr><td>8</td><td>9</td><td>16</td><td>15</td><td>14</td></tr><tr><td>15</td><td>16</td><td>30</td><td>29</td><td>28</td></tr></table>	x	$x + 1$	$2x$	$2x - 1$	$2(x - 1)$	3	4	6	5	4	8	9	16	15	14	15	16	30	29	28			
	x	$x + 1$	$2x$	$2x - 1$	$2(x - 1)$																				
	3	4	6	5	4																				
	8	9	16	15	14																				
15	16	30	29	28																					
or 2m	Any two rows, or any three columns, correct																								
or 1m	Any one row, or any two columns, or at least five values correct																								


Question	What's the height?		
11		Correct response	Additional guidance
	1m	8	

Question	Marking overlay available		Completing shapes
12		Correct response	Additional guidance
a	2m or 1m	<p>134</p> <p>Shows a correct method with not more than one computational error</p> <p>eg</p> <ul style="list-style-type: none"> ■ $180 - 46$ ■ $360 - (2 \times 46)$, then $\div 2$ ■ $360 - 92 = 270$ (error), $270 \div 2 = 135$ ■ $2 \times 46 = 94$ (error), $\frac{360 - 94}{2} = 133$ 	
b	2m or 1m	<p>Rhombus completed within the accuracy as specified on the overlay</p> <p>122 shown and correctly placed at either open end of the 6cm lines, even if the angle is incorrectly drawn</p> <p>eg</p> <div> </div> <p>or</p> <p>Two arcs of equal radius (even if not 6cm) are shown, centred at the open ends of the 6cm lines, indicating compasses have been used</p>	


Question		Using fractions																																				
13		Correct response	Additional guidance																																			
a	1m	18																																				
	1m	33																																				
	1m	36																																				
b	2m	12, with no evidence of an incorrect method	✓ <i>Answer</i> $\frac{12}{1}$																																			
	or 1m	Shows a correct method eg <ul style="list-style-type: none">▪ $\frac{18}{5} \times \frac{10}{3}$▪ $3.6 \div 0.3$▪ $\frac{180}{15}$▪ The number of $\frac{3}{10}$ in 3 is 10, $\frac{3}{5} = \frac{6}{10}$ which is another 2▪ Counting on in three tenths with not more than one computational error or Draws a diagram showing both $3\frac{3}{5}$ and at least one $\frac{3}{10}$ eg <ul style="list-style-type: none">▪ <table><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table> <table><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table> <table><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table> <table><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table> or Follows through as the final mark in part (a) $\div 3$																																				

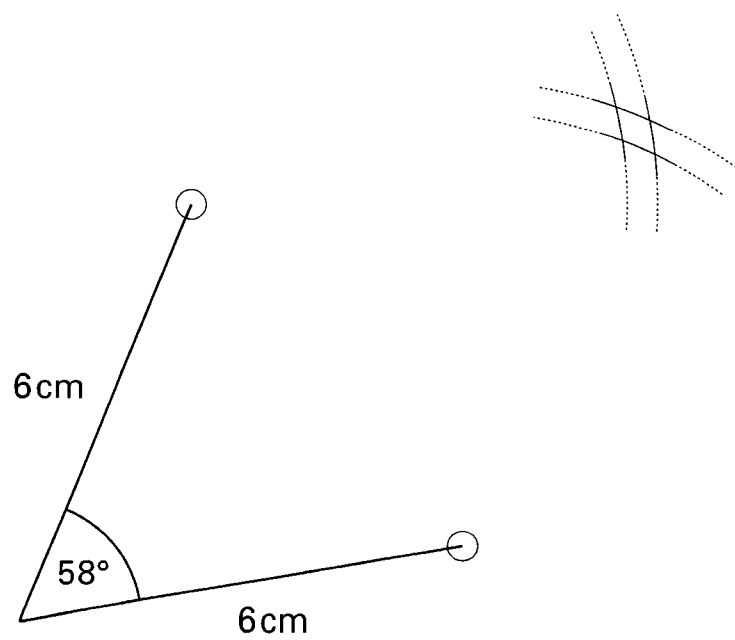
Question	Mean and range		
14		Correct response	Additional guidance
	<p>2m</p> <p>or</p> <p>1m</p>	<p>6 and 14, either order</p> <p>Gives 2 numbers that sum to 20</p> <p>eg</p> <ul style="list-style-type: none"> ■ 18, 2 ■ 10, 10 <p>or</p> <p>Gives 2 numbers that have a difference of 8</p> <p>eg</p> <ul style="list-style-type: none"> ■ 2, 10 ■ 17, 9 	

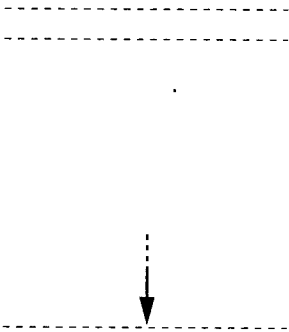
Question	Value		
15		Correct response	Additional guidance
	1m	30	

Question		 See GG – Algebra	Equations of lines
16		Correct response	Additional guidance
a	2m or 1m	<p>Only the correct two indicated, ie</p> $x + y = 4 \quad x = 4 + y \quad y - x = 4$ $y + 4 = x \quad x = y - 4$ <p>Only one of the correct two indicated, and none incorrect</p> <p>or</p> <p>The correct two indicated with only one incorrect</p>	
b	1m	<p>$y = x + 2$ or equivalent</p> <p>eg</p> <ul style="list-style-type: none"> ■ $y - 2 = x$ ■ $y - x = 2$ 	

Question			Calculate
17		Correct response	Additional guidance
	2m or 1m	<p>120.33</p> <p>Shows the digits 12033</p> <p>eg</p> <ul style="list-style-type: none"> ■ 1203.3 <p>or</p> <p>Shows a correct method with not more than one computational error, and the decimal point positioned correctly</p> <p>eg</p> <ul style="list-style-type: none"> ■ $\begin{array}{r} 573 \\ 21 \\ \hline 11460 \\ 573 \\ \hline 11833 \end{array} \text{ (error) Answer 118.33}$ ■ $57.3 + 57.3 + 5.73$ ■ $57.3 \times 2 + 5.73$ 	<p>✗ <i>Conceptual error</i></p> <p>eg</p> <ul style="list-style-type: none"> • $\begin{array}{r} 573 \\ 21 \\ \hline 1146 \\ 573 \\ \hline 1719 \end{array}$ <p>Answer 171.9</p>

Question		 See GG – Algebra	Solving
18		Correct response	Additional guidance
a	2m or 1m	6.5 or equivalent Shows a correct step of algebraic simplification eg <ul style="list-style-type: none"> ■ $2y = 13$ ■ $4y - 2y = 13$! Method used is trial and improvement Accept a correct solution from this method, but do not accept trial and improvement as an algebraic method for 1m
b	2m or 1m	– 3 Shows at least one correct step of algebraic simplification by: Simplifying the variables eg <ul style="list-style-type: none"> ■ $y + 10 = 7$ ■ $10 = -y + 7$ ■ $y = 7 - 10$ or Simplifying the numbers eg <ul style="list-style-type: none"> ■ $3y + 3 = 2y$ ■ $3y = 2y - 3$ ■ $3y - 2y = -3$ or Simplifying both eg <ul style="list-style-type: none"> ■ $3 = -y$ or Collecting together both variables and numbers eg <ul style="list-style-type: none"> ■ $3y - 2y = 7 - 10$ 	✓ y as 1y



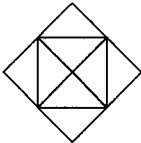
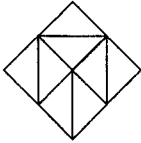
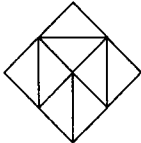
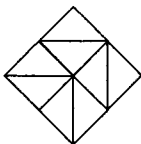
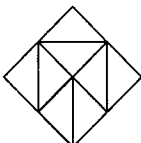
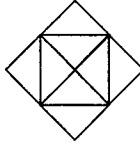
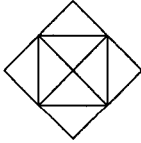
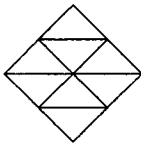
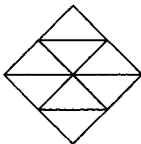
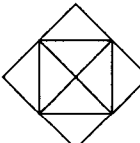


Mark scheme for test B

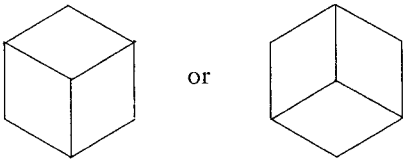
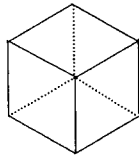
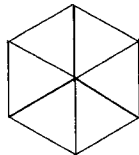
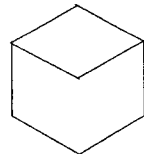
Question	Relationships		
1		Correct response	Additional guidance
a	2m <i>or</i> 1m	Both numbers correct, ie 3 and 258 One number correct; the other incorrect or omitted	
b	1m	Correct rule eg <ul style="list-style-type: none"> ■ Multiply by 2 ■ Times 2 ■ $\times 2$ ■ Double ■ Each time, you add on one more of the number you are already on 	<p>✓ <i>Compound rule</i> eg <ul style="list-style-type: none"> • Times 4, then $\div 2$ • $\times 3$ then subtract itself </p> <p>✓ <i>Rule expressed algebraically</i> eg <ul style="list-style-type: none"> • $n \times 2$ </p> <p>✓ <i>Minimally acceptable rule for adding on</i> eg <ul style="list-style-type: none"> • Add itself each time </p> <p>✗ <i>Incomplete rule that does not specify the changing aspect of what is being added</i> eg <ul style="list-style-type: none"> • Add itself • Add together the same number • Add the number you start with </p> <p>! <i>Sequence reversed</i> Accept only if the direction is made clear, through the giving of an example, or otherwise eg, accept <ul style="list-style-type: none"> • It's halved each time, eg $5.4 \div 2 = 2.7$ eg, do not accept <ul style="list-style-type: none"> • It's halved each time </p>

Question	What sum?		
		Correct response	Additional guidance
2			
	1m	3	

Question	Pictogram		
		Correct response	Additional guidance
3			
	1m	4	

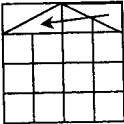
Question		Making patterns	
4		Correct response	Additional guidance
a	1m		<p>✓ Not ruled</p> <p>✗ No shading, or other indication of the orientation of the tiles</p>
b	1m	<p>Uses the four tiles to make a pattern with no lines of symmetry eg</p> <ul style="list-style-type: none">▪ ▪ ▪ ▪ 	<p>✗ Only 2 tiles, or different tiles, used</p> <p>✗ In part (b), the pattern has one line of symmetry eg</p> <ul style="list-style-type: none">▪ 
c	1m	<p>Uses the four tiles to make a pattern with rotation symmetry of order 2 eg</p> <ul style="list-style-type: none">▪ ▪ ▪ 	<p>✗ In part (c), the pattern has rotation symmetry of order 4 eg</p> <ul style="list-style-type: none">▪ 

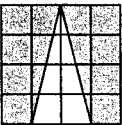
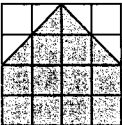


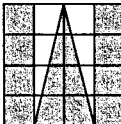

Coins			
Question		Correct response	Additional guidance
5			
a	1m	9.4	<p>! Rounded values Accept only if a more accurate value or correct method is seen</p> <p>✓ Equivalent values eg, for part (a) • 9.40</p> <p>✓ Follow through In part (c), follow through as any of the following: (a) + 7.4, or [2.35 + (b)] × 4, or (a) + 4 × (b)</p>
b	1m	1.85	
c	1m	16.8	


Cube drawing			
Question		Correct response	Additional guidance
6			
	1m		<p>! Lines not ruled, or not accurate Accept provided the pupil's intention is clear</p> <p>! Hidden lines shown Accept if shown as broken eg  </p> <p>but do not accept if shown as solid eg  </p> <p>✗ Lines omitted eg  </p>

Question	Marking overlay provided			Heights of men
		Correct response		
7				
a	1m	270		
b	1m	Draws a line of total length $4\text{cm} \pm 2\text{mm}$, ie within the tolerance as shown on the overlay	<p>✓ <i>Unambiguous height</i></p> <p>eg</p> <ul style="list-style-type: none"> Line of correct length drawn elsewhere on the page Man drawn, height 4 <p>✗ <i>Value of 4cm shown but line not drawn</i></p>	

Question				Length
		Correct response		
8				
a	1m	<p>Correct order</p> <p>eg</p> <ul style="list-style-type: none"> 10 centimetres 10 metres 10 kilometres 10 miles 	<p>✓ <i>Units only given, ie values of 10 omitted</i></p> <p>! <i>Abbreviations used</i></p> <p>Accept if unambiguous, even if unconventional</p> <p>eg, for part (a), accept</p> <ul style="list-style-type: none"> cm m km mi <p>eg, for part (a), accept</p> <ul style="list-style-type: none"> centimetres metres kilometres m (acceptable as metres already used) <p>eg, for part (b), accept</p> <ul style="list-style-type: none"> m g p km (acceptable as unambiguous in this context) <p>! <i>Both lists given in reverse order</i></p> <p>Mark as 0, 1</p>	
b	1m	<p>Correct order</p> <p>eg</p> <ul style="list-style-type: none"> 10 milligrams 10 grams 10 pounds 10 kilograms 		


Fractions		
Question		
9		
a	1m	<p>Gives a correct explanation</p> <p>The most common correct explanations:</p> <p>Use ratio eg</p> <ul style="list-style-type: none"> There are 7 times as many white as grey squares <p>Show understanding of fractions eg</p> <ul style="list-style-type: none"> It's half of a quarter <p>Use spatial methods eg</p> <ul style="list-style-type: none"> Move the triangle under, then there are 8 equal parts  <ul style="list-style-type: none"> If two squares stand for one unit, there are 8 units altogether. The two shaded bits fit together to make 1 unit, so it's 1 out of 8 <p>Refer to both 2 and 16 eg</p> <ul style="list-style-type: none"> There are 16 squares. 2 are shaded and $\frac{2}{16} = \frac{1}{8}$ There are 2 shaded triangles. Altogether, there would be 16 triangles so it's 2 out of 16 2 are shaded and 2 is $\frac{1}{8}$ of 16

Question	Fractions (cont.)		
9		Correct response	Additional guidance
b	1m	$\frac{3}{8}$ or equivalent fraction	<p>! <i>Decimal fraction</i> Accept only if exact, ie 0.375</p> <p>! <i>Incorrect cancelling</i> If a correct fraction is seen, ignore further incorrect working eg, accept $\frac{6}{16} = \frac{3}{9}$</p>
c	1m	<p>Shades $\frac{3}{4}$ using 2 lines, both of which start at P eg</p> <div style="display: flex; flex-direction: column; align-items: flex-start;"> <div>■ </div> <div>■ </div> <div>■ </div> <div>■ </div> </div>	<p>✓ <i>Lines not ruled</i></p> <p>✗ <i>No shading</i></p> <p>✗ <i>Other than 2 straight lines used</i> eg • </p> <p>! <i>Two adjacent regions shaded</i> Accept provided both lines start at P eg • </p>

Question		 See GG – Algebra	Simplify
10		Correct response	Additional guidance
	1m	Correct simplified expression eg <ul style="list-style-type: none"> ■ $5n$ ■ $5 \times n$ 	✗ Partially simplified expression eg, for $7n + 3$ <ul style="list-style-type: none"> • $4n + 3n + 3$
	1m	Correct simplified expression eg <ul style="list-style-type: none"> ■ $7n + 3$ ■ $3 + n \times 7$ 	

Question	Playing a game		
11		Correct response	Additional guidance
	1m	<p>Indicates 'Win' and gives a correct explanation</p> <p>The most common correct explanations:</p> <p>Compare 0.7 to 0.3</p> <p>eg</p> <ul style="list-style-type: none"> ■ 0.7 is bigger than 0.3 ■ It is .7 to win and .3 to lose ■ There's only a 0.3 chance of losing <p>Refer to where 0.7 lies on the probability scale</p> <p>eg</p> <ul style="list-style-type: none"> ■ 0.7 is more than half ■ Point 7 is closer to 1 ■ To lose she'd have to have less than 0.5 	<p>✓ <i>Minimally acceptable explanation</i></p> <p>eg</p> <ul style="list-style-type: none"> ♦ It's $\frac{7}{10}$ ♦ It means 70% ♦ 0.7 is a high probability ♦ It's more than half <p>✗ <i>Incomplete explanation</i></p> <p>eg</p> <ul style="list-style-type: none"> ♦ 0.7 is a big number ♦ It's 50/50 to win ♦ She has more probability <p>✗ <i>Explanation is a restatement of the question</i></p> <p>eg</p> <ul style="list-style-type: none"> ♦ Because it is 0.7 <p>! <i>Conversion to a 10 point scale</i></p> <p>Accept if unambiguous and the 7 (or 3) is compared to at least one other value on the 10 point scale</p> <p>eg, accept</p> <ul style="list-style-type: none"> ♦ 7 is bigger than 5 ♦ 7 is nearer to 10 ♦ 3 is closer to zero <p>eg, do not accept</p> <ul style="list-style-type: none"> ♦ It's 7 ♦ It's more than 5 ♦ 7 is closer to 10 than to 1 (Note this is not a 10 point scale) <p>✗ <i>Incorrect statement, even if accompanied by a correct explanation</i></p> <p>eg</p> <ul style="list-style-type: none"> ♦ It's 0.3 for losing, and 7 is nearer to 1 ♦ It's only a 0.2 chance of losing

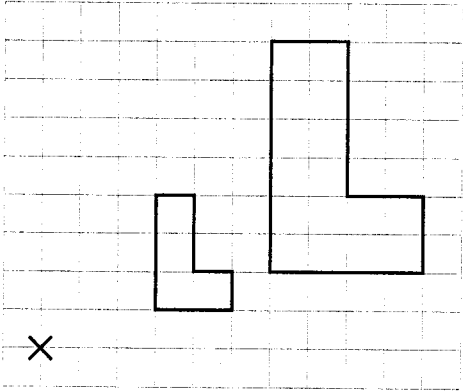
Question	Making cuboids		
12		Correct response	Additional guidance
	1m	<p>Gives two numbers that multiply together to make 12</p> <p>eg</p> <ul style="list-style-type: none"> ▪ 12, 1 ▪ 4, 3 ▪ 2, 6 	

Question		 See GG – Algebra		Algebra chain
13		Correct response		Additional guidance
a	1m	x	<p>✓ $1x$ or $x + 0$ or $1x + 0$</p> <p>✓ <i>Unsimplified expression</i></p> <p>eg</p> <ul style="list-style-type: none"> • $3x + 4 + 3x + 4 + x - 7$ <p>✓ <i>Expression using words</i></p> <p>eg</p> <ul style="list-style-type: none"> • $7x$ and 1 <p>✗ <i>Operation not specified</i></p> <p>eg</p> <ul style="list-style-type: none"> • $7x, 1$ <p>✗ <i>Repeated value</i></p> <p>eg</p> <ul style="list-style-type: none"> • 5, 5 	
	1m	$7x + 1$		
	1m	5		
b	1m	$12x + 6$	<p>! <i>Brackets inserted</i></p> <p>Accept redundant but unambiguous brackets</p> <p>eg</p> <ul style="list-style-type: none"> • $(12x + 6)$ • $(12x) + 6$ <p>Do not accept if incorrect</p> <p>eg</p> <ul style="list-style-type: none"> • $12(x + 6)$ <p>✗ <i>Incomplete expansion</i></p> <p>eg</p> <ul style="list-style-type: none"> • $2x \times 6 = 12x, 1 \times 6 = 6$ 	

Question		Reading	
14		Correct response	Additional guidance
a	2m <		

Question	Star-shape		
15		Correct response	Additional guidance
a	1m	Gives a correct justification eg <ul style="list-style-type: none"> ■ $360 \div 5$ ■ $5 \times 72 = 360$ 	✓ <i>Minimally acceptable explanation</i> eg <ul style="list-style-type: none"> ♦ They are all 72, as it adds to 360
b	2m <i>or</i> 1m	28 Shows a complete correct method eg <ul style="list-style-type: none"> ■ $72 + 80 = 152$, $180 - 152$ ■ $152 + b = 180$ or Works with 2, or 3, triangles, with the only error being omitting to divide to find the value of b eg <ul style="list-style-type: none"> ■ $80 + 72 = 152$, $152 \times 2 = 304$, $360 - 304 = 56$ ■ $216 + 240 = 456$, $540 - 456 = 84$ 	

Question		See GG – Probability	Two counters
16		Correct response	Additional guidance
a	2m 		

Question	Enlargement		
17		Correct response	Additional guidance
a	1m	2	<p>✓ <i>Informal notation that shows the relationship between the sides</i></p> <p>eg</p> <ul style="list-style-type: none"> ♦ $\times 2$ ♦ Times 2 ♦ $1 : 2$ ♦ 200% <p>✗ <i>Ambiguous notation</i></p> <p>eg</p> <ul style="list-style-type: none"> ♦ 2 squares bigger <p>✗ <i>Inverse relationship</i></p> <p>eg</p> <ul style="list-style-type: none"> ♦ $\frac{1}{2}$
b	1m	<p>Centre of enlargement in the correct position, within $\pm 2\text{mm}$</p> <p>eg</p> 	

Question		Internet	
18		Correct response	Additional guidance
a	1m	3	
	1m	50 p	
b	1m	<p>Indicates that the cost remains the same eg</p> <ul style="list-style-type: none"> ■ It's a constant charge of £10 ■ It costs £10 each month 	<p>✓ <i>Minimally acceptable answer</i> eg</p> <ul style="list-style-type: none"> • The cost is £10 • Always £10 • The price stays the same <p>✗ <i>Incomplete interpretation</i> eg</p> <ul style="list-style-type: none"> • £10 • The same <p>✗ <i>Incorrect interpretation</i> eg</p> <ul style="list-style-type: none"> • It's a constant charge of £9 • It charges £10 per hour in the month • £10 per month every hour • They all cost the same each month

Question		Hearts	
19		Correct response	Additional guidance
	<p>2m</p> <p>or</p> <p>1m</p>	<p>315</p> <p>315.(...)</p> <p>or</p> <p>Shows a complete correct method eg</p> <ul style="list-style-type: none"> ■ 1.19×265 ■ $\frac{19}{100} \times 265 + 265$ ■ $10\% = 26.5, 5\% = 13.25, 1\% = 2.65$ $19\% = 2.65 + 13.25 + 4 \times 2.65 = 49.99$ (error) total is $265 + 49.99 = 314.99$ <p>or</p> <p>Calculates 19% of 265 correctly eg</p> <ul style="list-style-type: none"> ■ 50.35 	<p>✓ <i>For 1m, rounds or truncates to 50.4 or 50.3 or 50</i></p>

Question	Square units		
20		Correct response	Additional guidance
	1m	10 000	✗ Incomplete processing eg • 100^2

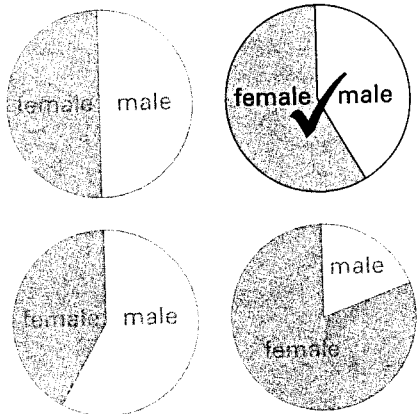
Question	Modern languages		
21		Correct response	Additional guidance
a	1m	<p>Gives a correct explanation that shows calculations or the result of calculations</p> eg <ul style="list-style-type: none"> ■ In year 8 six more pupils study German but in year 9 six more do French. It's the same number in year 7 ■ $50 + 76 + 75 = 50 + 82 + 69$ ■ 201 do each language 	<p>✓ <i>Year 7 ignored</i></p> eg <ul style="list-style-type: none"> • 6 more in year 8, but 6 less in year 9 • $76 + 75 = 82 + 69$ • In years 8 and 9, 151 do each language <p>✗ <i>No calculations shown or implied</i></p> <ul style="list-style-type: none"> • The total for French is the same as the total for German • Both the same <p>✓ <i>Transcription error(s) alongside correct totals</i></p> eg <ul style="list-style-type: none"> • $50 + 76 + 75 = 201$, and $50 + 82 + 75$ (error) = 201
b	1m	<p>Shows a correct calculation, including an explanation of 158</p> eg <ul style="list-style-type: none"> ■ $76 + 82 = 158$ which is the total number learning French and German, so as there are only 104 pupils, 54 must learn both ■ The graph shows 158 people but there are only 104 pupils and $104 + 54 = 158$ ■ Add the bars together and you get 158; that's 54 more people than are in year 8 ■ $76 + 82 = 158$ and $158 - 104 = 54$ ■ Add together 76 and 82 then take away 104 54 must learn both <p>or</p> <p>Gives a correct description of the method</p> eg <ul style="list-style-type: none"> ■ He added the single subjects up then he took away the number in the year group 	<p>✗ <i>158 not interpreted</i></p> eg <ul style="list-style-type: none"> • $104 + 54 = 158$
c	1m	22	

Question	Centenarians		
21		Correct response	Additional guidance
	2m or 1m	108 000 Shows $135\,000 \div 5$ or $135 \div 5$ or Shows the digits 27 eg ■ 27000	

Mental arithmetic test mark scheme

Time: 10 seconds

6	180 degrees	
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7	
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8	(0).128	
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9	5 cm	
----------	-------------	--

Time: 5 seconds

1	7010	Do not accept answers given in words
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2	5y	
----------	-----------	--

3	7	
----------	----------	--

4	3000 metres	
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5	0.2	Accept equivalent decimals
----------	------------	----------------------------

10		
	53 degrees	

11		
		48 % ≤ answer ≤ 52 %

Time: 10 seconds

12	£ 12	Do not accept £12%
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13	$\frac{1}{3}$	Accept equivalent probabilities, but not approximations
----	---------------	---

14	7	
----	---	--

15	20 %	
----	------	--

16	0.95	Accept equivalent probabilities
----	------	---------------------------------

17	32	
----	----	--

18	5.29	Do not accept equivalent answers
----	------	----------------------------------

Time: 15 seconds

19	
	5 miles ≤ answer ≤ 7 miles

20	600	
----	-----	--

21	
	5 % ≤ answer ≤ 10 %

22	25.4	Accept equivalent answers
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23	450	
----	-----	--

24	$\frac{3}{8}$	Accept equivalent answers, but not approximations
----	---------------	---

25	40°	
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