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# GCSE MATHEMATICS 8300/3F

Foundation Tier

Paper 3 Calculator

Shadow paper based on 2020 question paper

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**Mark scheme**

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Version: 1.0

Mark schemes are prepared by the Lead Assessment Writer and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation events which all associates participate in and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the students' responses to questions and that every associate understands and applies it in the same correct way. As preparation for standardisation each associate analyses a number of students' scripts. Alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, associates encounter unusual answers which have not been raised they are required to refer these to the Lead Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of students' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

Further copies of this mark scheme are available from [aqa.org.uk](http://aqa.org.uk)

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## Glossary for Mark Schemes

GCSE examinations are marked in such a way as to award positive achievement wherever possible. Thus, for GCSE Mathematics papers, marks are awarded under various categories.

If a student uses a method which is not explicitly covered by the mark scheme the same principles of marking should be applied. Credit should be given to any valid methods. Examiners should seek advice from their senior examiner if in any doubt.

<b>M</b>	Method marks are awarded for a correct method which could lead to a correct answer.
<b>A</b>	Accuracy marks are awarded when following on from a correct method. It is not necessary to always see the method. This can be implied.
<b>B</b>	Marks awarded independent of method.
<b>ft</b>	Follow through marks. Marks awarded for correct working following a mistake in an earlier step.
<b>SC</b>	Special case. Marks awarded for a common misinterpretation which has some mathematical worth.
<b>M dep</b>	A method mark dependent on a previous method mark being awarded.
<b>B dep</b>	A mark that can only be awarded if a previous independent mark has been awarded.
<b>oe</b>	Or equivalent. Accept answers that are equivalent. eg accept 0.5 as well as $\frac{1}{2}$
<b>[a, b]</b>	Accept values between a and b inclusive.
<b>[a, b)</b>	Accept values $a \leq \text{value} < b$
<b>3.14 ...</b>	Accept answers which begin 3.14 eg 3.14, 3.142, 3.1416
<b>Use of brackets</b>	It is not necessary to see the bracketed work to award the marks.

Examiners should consistently apply the following principles.

### **Diagrams**

Diagrams that have working on them should be treated like normal responses. If a diagram has been written on but the correct response is within the answer space, the work within the answer space should be marked. Working on diagrams that contradicts work within the answer space is not to be considered as choice but as working, and is not, therefore, penalised.

### **Responses which appear to come from incorrect methods**

Whenever there is doubt as to whether a student has used an incorrect method to obtain an answer, as a general principle, the benefit of doubt must be given to the student. In cases where there is no doubt that the answer has come from incorrect working then the student should be penalised.

### **Questions which ask students to show working**

Instructions on marking will be given but usually marks are not awarded to students who show no working.

### **Questions which do not ask students to show working**

As a general principle, a correct response is awarded full marks.

### **Misread or miscopy**

Students often copy values from a question incorrectly. If the examiner thinks that the student has made a genuine misread, then only the accuracy marks (A or B marks), up to a maximum of 2 marks are penalised. The method marks can still be awarded.

### **Further work**

Once the correct answer has been seen, further working may be ignored unless it goes on to contradict the correct answer.

### **Choice**

When a choice of answers and/or methods is given, mark each attempt. If both methods are valid then M marks can be awarded but any incorrect answer or method would result in marks being lost.

### **Work not replaced**

Erased or crossed out work that is still legible should be marked.

### **Work replaced**

Erased or crossed out work that has been replaced is not awarded marks.

### **Premature approximation**

Rounding off too early can lead to inaccuracy in the final answer. This should be penalised by 1 mark unless instructed otherwise.

### **Continental notation**

Accept a comma used instead of a decimal point (for example, in measurements or currency), provided that it is clear to the examiner that the student intended it to be a decimal point.

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<b>Q</b>	<b>Answer</b>	<b>Mark</b>	<b>Comments</b>
<b>1</b>	4.9	B1	

<b>Q</b>	<b>Answer</b>	<b>Mark</b>	<b>Comments</b>
<b>2</b>	160	B1	

<b>Q</b>	<b>Answer</b>	<b>Mark</b>	<b>Comments</b>
<b>3</b>	$0.03 < 0.3$	B1	

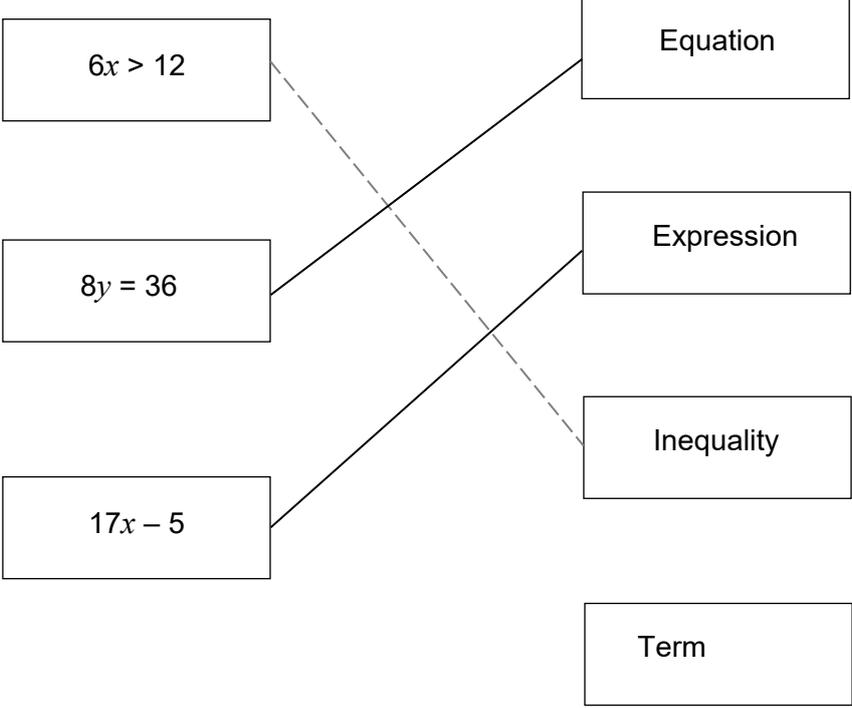
<b>Q</b>	<b>Answer</b>	<b>Mark</b>	<b>Comments</b>
<b>4</b>	A and B	B1	

Q	Answer	Mark	Comments	
5(a)	$95 \times 2$ or $92 \times 5$	B1		
	<b>Additional Guidance</b>			
	Ignore any answer to their calculation			
	Accept a correct response alone or selected in the working space if the answer box is blank or crossed out			

Q	Answer	Mark	Comments	
5(b)	$5 \times 2 - 9$ or $2 \times 5 - 9$	B1		
	<b>Additional Guidance</b>			
	Ignore any answer to their calculation			
	Accept a correct response alone or selected in the working space if the answer box is blank or crossed out			

Q	Answer	Mark	Comments	
5(c)	$\frac{6+5}{9+2} = 1$ or $\frac{6+5}{2+9} = 1$	B1		
	<b>Additional Guidance</b>			
	Accept a correct response alone or selected in the working space if the answer box is blank or crossed out			

Q	Answer	Mark	Comments
<b>6</b>	<b>Alternative method 1</b>		
	$449.5(0) - 135$ or $314.5(0)$	M1	oe
	$\frac{\text{their } 314.5(0)}{18.5(0)}$	M1dep	oe
	17	A1	
	<b>Alternative method 2</b>		
	$\frac{449.5(0)}{18.5(0)}$ or $24.297297\dots$	M1	oe
	their $24.297297\dots - \frac{135}{18.5(0)}$	M1dep	oe
	17	A1	
	<b>Additional Guidance</b>		
	Award M1 or M2 work even if not subsequently used		
	Build up methods to $314.5(0)$ score first M1 only unless fully correct		
	Build up methods from 135 score M0 unless fully correct		
	Accept $24.3\dots$ or $24.29$ for $24.297297\dots$		

Q	Answer	Mark	Comments
<b>7</b>	Two correct matches	B2	B1 one correct match
	<b>Additional Guidance</b>		
	Do not accept two lines from an algebra box		
			<b>B2</b>

Q	Answer	Mark	Comments																																										
8	<table border="1"> <tr><td>E</td><td>A</td></tr> <tr><td>R</td><td>A</td></tr> <tr><td>T</td><td>A</td></tr> <tr><td>E</td><td>L</td></tr> <tr><td>R</td><td>L</td></tr> <tr><td>T</td><td>L</td></tr> </table> <p>with no extras</p>	E	A	R	A	T	A	E	L	R	L	T	L	B2	<p>B1 three additional correct teams with no errors or repetitions</p> <p>or</p> <p>four additional correct teams with at most one error or repetition</p> <p>or</p> <p>five additional correct teams with one or two errors or repetitions</p> <p>SC1</p> <table border="1"> <tr><td>E</td><td>A</td><td rowspan="6" style="text-align: center;">or</td><td>EA</td><td>AE</td></tr> <tr><td>A</td><td>E</td><td>RA</td><td>AR</td></tr> <tr><td>L</td><td>E</td><td>TA</td><td>AT</td></tr> <tr><td>A</td><td>R</td><td>EL</td><td>LE</td></tr> <tr><td>L</td><td>R</td><td>RL</td><td>LR</td></tr> <tr><td>A</td><td>T</td><td>TL</td><td>LT</td></tr> <tr><td>L</td><td>T</td><td></td><td></td><td></td></tr> </table>	E	A	or	EA	AE	A	E	RA	AR	L	E	TA	AT	A	R	EL	LE	L	R	RL	LR	A	T	TL	LT	L	T			
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L	R		RL	LR																																									
A	T		TL	LT																																									
L	T																																												
<b>Additional Guidance</b>																																													
Full names are acceptable																																													
Condone repetition of AE																																													
Rows can be in any order																																													
Accept lower case letters																																													
For B1 condone teams in either column																																													

Q	Answer	Mark	Comments	
<b>9</b>	380 or 35 in correct position	B1		
	600 – 380 or 220	M1		
	0.75 × their 380 or 285 or 0.25 × their 380 or 95	M1	oe	
	their 220 – their 35 or 185 or 380 – their 285 or 380 – their 95 or 0.75 × their 380 or 285 and 0.25 × their 380 or 95	M1		
	Fully correct frequency tree	A1		
	<b>Additional Guidance</b>			
	Allow relative frequencies with denominator of 600 for B1 or M marks			
	Mark the diagram first, values in diagram have priority over working			
	Correct values may be incorrectly placed for method marks			

**Additional Guidance continues on the next page**

Q	Additional Guidance continued
<p style="text-align: center;"><b>9 cont</b></p>	<div style="display: flex; justify-content: space-around; text-align: center;"> <div> <p><b>Total number of people</b></p> </div> <div> <p><b>Doctor or dentist</b></p> </div> <div> <p><b>Result</b></p> </div> </div> <pre> graph LR     A(600) -- Doctor --&gt; B(380)     A -- Dentist --&gt; C(220)     B -- Enjoyed --&gt; D(285)     B -- Did not enjoy --&gt; E(95)     C -- Enjoyed --&gt; F(185)     C -- Did not enjoy --&gt; G(35)     </pre>

Q	Answer	Mark	Comments
10	$5.8 \times 1000$ or 5800 or $5700 \div 1000$ or 5.7 or $5\frac{3}{4} \times 1000$ or 5750 or 5.75	M1	
	Shortest distance 5700 (metres) $(5\frac{3}{4})$ (kilometres) Longest distance 5.8 (kilometres) with no incorrect working	A1	any indication eg allow 5800 (metres) for 5.8 (kilometres)
	<b>Additional Guidance</b>		
	Award M1 work even if not subsequently used		
	Correct order with no incorrect working		M1A1
	Correct order with incorrect working can score up to M1 eg 0.57 5.75 5.8 eg 5700 57500 58000		M1A0 M0A0
	5.7 or 5.75 with order incorrect		M1A0
	5800 or 5750 with order incorrect		M1A0

Q	Answer	Mark	Comments
11	180 – 113 – 49	M1	oe
	18	A1	

Q	Answer	Mark	Comments
12(a)	$360 - 72 - 159$ or 129	M1	oe
	their $129 \div 3$ or 43 or their $129 \div 3 \times 2$ or 86	M1dep	oe implied by one correctly drawn angle in pie chart $\pm 2^\circ$
	$86^\circ$ sector labelled Green or G and $43^\circ$ sector labelled Red or R	A1	$\pm 2^\circ$ line must be ruled
	<b>Additional Guidance</b>		
	Both sectors must be correctly labelled with letters or words for the accuracy mark		

Q	Answer	Mark	Comments	
12(b)	$\frac{159}{360}$ or $\frac{360}{159}$ or $\frac{6000}{360}$ or $\frac{360}{6000}$	M1	oe eg $159 \div 360$ eg 0.441666... or 2.2641509... or 16.666... or 0.06	
	2650	A1		
	<b>Additional Guidance</b>			
	2650 out of 6000			M1A1
	$\frac{2650}{6000}$			M1A0

Q	Answer	Mark	Comments
13	<b>Alternative method 1</b>		
	3.6(0) ÷ 0.2(0) or 18	M1	oe eg 360 ÷ 20
	their $\frac{1}{2} \times 18 \times 0.1(0)$ or (0).90 or their $\frac{1}{2} \times 18 \times 0.9(0)$ or 4.5	M1dep	oe eg $\frac{1}{2} \times 18 \times 10$ or 90
	4.50	A1	
	<b>Alternative method 2</b>		
	10 ÷ 20 or 0.5	M1	oe
	their 3.6(0) or 0.5 × (0).90 or 4.5	M1dep	oe eg their 0.5 × 180 or 90 or 450
	4.50	A1	

Q	Answer	Mark	Comments	
14(a)	$3 \times 32 + 5 \times 21$ or $96 + 105$ or 201	M1	oe	
	Any combination of ticket prices for 3 adults and 5 children involving at least one special offer	M1	oe eg $58 + 2 \times 32 + 3 \times 21$ or 185 or $101 + 32 + 2 \times 21$ or 175 or $2 \times 58 + 21 + 32$ or 169	
	their 201 – their combination total for 3 adults and 5 children	M1dep	oe eg $201 - 159$ if fully correct or $201 - 185$ or 16 or $201 - 175$ or 26 or $201 - 169$ or 32 dep on second M mark	
	42	A1		
	<b>Additional Guidance</b>			
	Award M1, M2 or M3 work even if not subsequently used			

Q	Answer	Mark	Comments
14(b)	$32 \times \frac{1}{4}$ or 8 or $5 \times 32 \times \frac{1}{4}$ or 40	M1	oe implied by $32 \times \left(1 - \frac{1}{4}\right)$ or 24
	$5 \times 32 - 5 \times 32 \times \frac{1}{4}$ or 160 – 40	M1dep	oe eg $5 \times 32 \times \frac{3}{4}$ or $160 \times \frac{3}{4}$ or $5 \times 24$
	120	A1	
	<b>Additional Guidance</b>		
	160 and $200 - 160 = 40$		

Q	Answer	Mark	Comments
15	$n^3$	B1	

Q	Answer	Mark	Comments
16(a)	Correct ruled straight line through (0, 0) and (20, 72)	B2	$\pm \frac{1}{2}$ square B1 any one correct coordinate plotted or seen in a table of values with $1 \leq x \leq 20$ eg (1, 3.6) (2, 7.2) (3, 10.8) (4, 14.4) (5, 18) (10, 36) (15, 54) or (20, 72)
	<b>Additional Guidance</b>		
	Ignore lines beyond (0, 0) to (20, 72)		
	Ignore incorrect points plotted		
	To award B1, points plotted cannot be implied by an incorrect line, there must be a coordinate plotted or values in a table		
Correct ruled line but too short		B1	

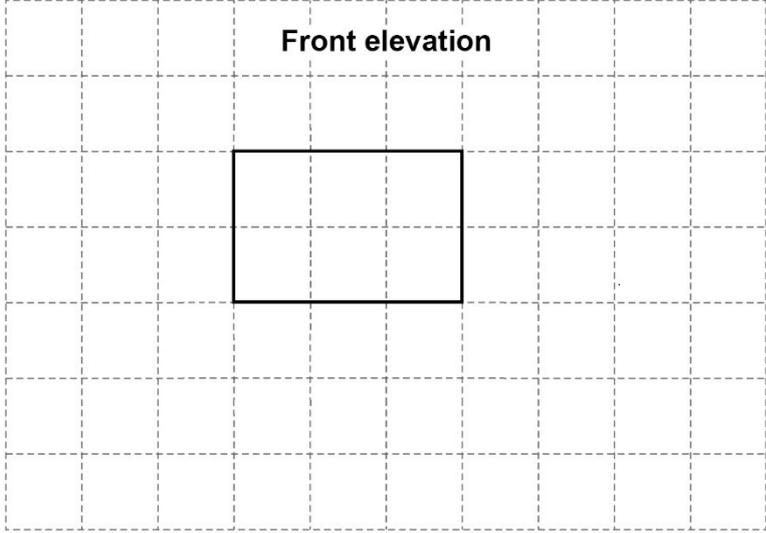
Q	Answer	Mark	Comments
16(b)	18	B1ft	ft from their graph in part (a) $\pm \frac{1}{2}$ square
	<b>Additional Guidance</b>		
	Answer must be a whole number		

Q	Answer	Mark	Comments
16(c)	<b>Alternative method 1</b> (using formula and conversion factor)		
	50 × 3.6 or 180 or 50 ÷ 1.61 or [31.0, 31.1] or 3.6 ÷ 1.61 or [2.2, 2.24] or 1.61 ÷ 3.6 or [0.4, 0.45]	M1	oe working in metres eg 50 × 60 × 60 or 108 000
	their 180 ÷ 1.61 or their [31.0, 31.1] × 3.6 or their [2.2, 2.24] × 50 or 50 ÷ their [0.4, 0.45]	M1dep	oe working in metres eg 180 000 ÷ 1610
	111.8	A1	[110, 112]
	<b>Alternative method 2</b> (using graph and conversion factor)		
	Uses their graph to convert 50 m/s to km/h or 180	M1	eg 5 × (their $y$ at $x = 10$ ) or (their $y$ at $x = 10$ ) + 2 × (their $y$ at $x = 20$ ) $\pm \frac{1}{2}$ square
	their 180 ÷ 1.61	M1dep	
	111.8	A1ft	ft from their graph in part (a) and M2
	<b>Additional Guidance</b>		
	Alt 2 For A1ft answers may be rounded to the nearest integer or rounded to 1 decimal place eg their graph used correctly gives 180 km/h 180 ÷ 1.61 111.8		M1 M1dep A1ft

Q	Answer	Mark	Comments
17(a)	$1 \times 4$ and $2 \times 3$ and $3 \times 8$ and $4 \times 1$ and $5 \times 4$ or $4$ and $6$ and $24$ and $4$ and $20$ or $58$	M1	allow one error
	$(4 + 6 + 24 + 4 + 20) \div 20$ or $58 \div 20$ or their $58 \div 20$	M1dep	without working their 58 must be the correct sum of their products
	2.9	A1	oe
	<b>Additional Guidance</b>		
	Five products or values must be seen for first M1		
	Ignore attempt to round after 2.9 seen		M1M1A1
	$58 \div 5$		M1M0
	$4 + 6 + 24 + 4 + 20 \div 20$ unless recovered		M1M0
	Correct products seen with $20 \div 5$		M0

Q	Answer	Mark	Comments
17(b)	4 + 3 or 20 – (4 + 1 + 8) or 7 or $1 - \frac{4+1+8}{20}$	M1	oe
	$\frac{7}{20}$ or 0.35 or 35%	A1	oe
	<b>Additional Guidance</b>		
	Ignore attempts to simplify or convert a correct fraction		
	Ignore probability words		
	7 out of 20 or 7 in 20 alone on the answer line with a correct answer in working		M1A1
	7 out of 20 or 7 in 20 together with a correct answer on the answer line		M1A1
	7 : 20 with a correct answer together on the answer line		M1A0

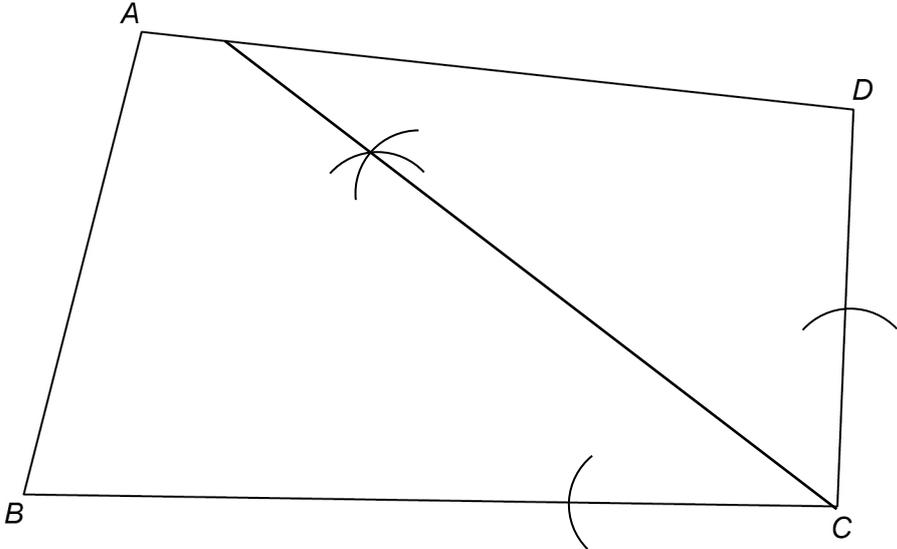
Q	Answer	Mark	Comments
18	$20 \times x$ or $20x$	M1	oe
	$T = 15 + 40 + 20x$ or $T = 55 + 20x$	A1	oe eg $T = 20x + 15 + 40$ allow $T = 15 + 40 + 20 \times x$
	<b>Additional Guidance</b>		
	Condone $x20$ for $20x$ for M mark		
	Ignore units		
	$15 + 40 + 20x = T$ or $55 + 20x = T$		M1A1
	Condone a correct rearrangement after $T = 15 + 10x$ seen eg $T - 15 - 40 = 20x$ or $x = \frac{T - 15 - 40}{20}$		M1A1
	Do not ignore further incorrect working eg $T = 15 + 40 + 20x$ and $T = 75x$		M1A0
	$T = 5 \times 3 + 10 \times 4 + 20 \times x$		M1A0
	$55 + 20x$		M1A0

Q	Answer	Mark	Comments
19	Rectangle with height 2 and width 3	B2	any position on the grid B1 rectangle with height 2 or width 3 or cuboid with rectangular front face height 2 and width 3
	<b>Additional Guidance</b>		
	Accept unruled lines		
	<div style="text-align: center;">  <p>Front elevation</p> </div>		B2

Q	Answer	Mark	Comments
20(a)	29499	B1	
	<b>Additional Guidance</b>		
	Accept response in words		
	29499. $\dot{9}$ or 2949 $\dot{9}$		B0

Q	Answer	Mark	Comments
20(b)	28500	B1	
	<b>Additional Guidance</b>		
	Accept response in words		

Q	Answer	Mark	Comments
21	$y = 7x + 2$	B1	

Q	Answer	Mark	Comments
22	Two arcs of equal radius or a single arc, centre $C$ , cutting $BC$ and $CD$ or a single arc cutting $BC$ with radius = $CD$	M1	$\pm 2$ mm  $\pm 2$ mm
	Fully correct method of construction of bisector of angle $BCD$	A1	
	<b>Additional Guidance</b>		
	Award M1 if correct arc(s) seen alongside incorrect arc(s)		
	Angle bisector does not need to meet $AD$ and ignore angle bisector extended beyond $AD$		
	Accept an arc touching the line $BC$ or $CD$		
	No arcs seen on $BC$		M0
 <p>The diagram shows a quadrilateral with vertices labeled A, B, C, and D. A line segment is drawn from vertex A to vertex C. At vertex C, there are two arcs drawn with the same radius, one intersecting side BC and the other intersecting side CD. These arcs represent the construction of an angle bisector for angle BCD.</p>			

Q	Answer	Mark	Comments
23	1 : 3	B1	

Q	Answer	Mark	Comments
24	28 <sup>2</sup> and 45 <sup>2</sup> or 784 and 2025 or 2809	M1	
	$\sqrt{28^2 + 45^2}$ or $\sqrt{784 + 2025}$ or $\sqrt{2809}$	M1dep	
	53	A1	
	<b>Additional Guidance</b>		
	Answer only 53		M1M1A1
	53 from scale drawing		M0M0A0
	53 from trigonometry		M0M0A0

Q	Answer	Mark	Comments
<b>25</b>	<b>Alternative method 1</b>		
	$30 \times \frac{30}{60}$ or $30 \times \frac{1}{2}$ or 15	M1	oe eg $30 \div 2$
	135 – 90 or 45	M1	oe eg $\frac{3}{4}$
	20	A1	
	<b>Alternative method 2</b>		
	$\frac{30}{135-90}$ or $\frac{30}{45}$ or $\frac{2}{3}$ or $\frac{135-90}{30}$ or $\frac{45}{30}$ or $\frac{3}{2}$	M1	oe eg $30 : (135 - 90)$ or $30 : 45$ or $2 : 3$ or $(135 - 90) : 30$ or $45 : 30$ or $3 : 2$
	$30 \times \frac{30}{135-90}$	M1dep	oe eg $\frac{30 \times 30}{45}$ eg $30 \div \frac{3}{2}$
	20	A1	
	<b>Additional Guidance</b>		
	Award M1 or M2 work even if not subsequently used		
	Check diagram for working		
	$30 \div 3 = 10$ and $30 - 10 = 20$		M2A1
Ignore units unless 15 or 45 is from clearly incorrect working eg 60 (mph) = 60 minutes      30 (mph) = 30 minutes eg 30 (mph) = 30 minutes      15 (mph) = 15 minutes		M1 M0	

Q	Answer	Mark	Comments
26	$\frac{20}{25}$ or $\frac{25}{20}$ or $\frac{15}{25}$ or $\frac{25}{15}$ or 15 : 12 or 12 : 15 or 20 : 12 or 12 : 20	M1	oe eg $20 \div 25$ eg $\frac{4}{5}$ or $\frac{5}{4}$ or $\frac{3}{5}$ or $\frac{5}{3}$ eg 0.8 or 1.25
	12	A1	oe
	<b>Additional Guidance</b>		
	Award M1 work even if not subsequently used		
	$15 \times 25 \div 20$		M1

Q	Answer	Mark	Comments
27	$x^2 - 4x + 4$	B1	

Q	Answer	Mark	Comments	
28	$a = 0$ and $b = 7$ and $c = 6$ or $a = 1$ and $b = 6$ and $c = 6$ or $a = 2$ and $b = 5$ and $c = 6$ or $a = 3$ and $b = 4$ and $c = 6$ or $a = 4$ and $b = 3$ and $c = 6$ or $a = 5$ and $b = 2$ and $c = 6$ or $a = 6$ and $b = 1$ and $c = 6$	B3	B2 $a + b = 7$ with integer values of $a \geq 0$ and $b \geq 1$ B1 $c = 6$ or $a + b + c = 13$ with integer values of $a \geq 0$ and $b \geq 0$ and $c \geq 0$ or 15th value = 3 and 16th value = 4 stated or correct median position indicated on a list	
	<b>Additional Guidance</b>			
	Values may be seen alongside or in the table			
	Blank answer line does not indicate zero for that value eg $a = \underline{\quad}$ $b = 7$ $c = 6$		B1	
	$a = 1$ $b = 5$ $c = 6$		B1	
	$a = 13$ $b = 0$ $c = 0$		B1	
	$a = 7$ $b = 0$ $c = 6$		B1	
	$a = 7$ $b = 0$ $c = 3$		B0	

Q	Answer	Mark	Comments
29	80 × 1.15 or 92 or 60 × 1.25 or 75	M1	oe
	their 92 × their 75 or 6900	M1dep	oe
	60 × 80 or 4800	M1	oe
	$\frac{6900 - 4800}{4800} = 43.75\%$ and No	A1	

Q	Answer	Mark	Comments
30	15x – 10 or –4x – 3	M1	may be seen in a grid implied by –4x – 10 – 3 or 15x – 13 – 4x
	11x – 13	A1	
	<b>Additional Guidance</b>		
	Do not ignore further working eg 11x – 13 = 19x eg 11x – 13, $c = \frac{13}{11}$		M1A0 M1A0
	15x – 10 – 4x – 3		M1

Q	Answer	Mark	Comments
	$(2\mathbf{c} \Rightarrow) \begin{pmatrix} 10 \\ 16 \end{pmatrix}$ or $(3\mathbf{d} \Rightarrow) \begin{pmatrix} -6 \\ 18 \end{pmatrix}$ or $(\text{answer} \Rightarrow) \begin{pmatrix} 16 \\ \dots \end{pmatrix}$ or $(\text{answer} \Rightarrow) \begin{pmatrix} \dots \\ -2 \end{pmatrix}$	M1	
31	$\begin{pmatrix} 16 \\ -2 \end{pmatrix}$	A1	
<b>Additional Guidance</b>			
Condone missing brackets and divisor lines for M mark			
Must see $\begin{pmatrix} 16 \\ -2 \end{pmatrix}$ to award the A mark, condone divisor line			
Condone vectors written as coordinates eg (10, 16) eg (16, ...)			M1 M1
Allow 10 16 or -6 18			M1
16 10 or 18 -6			M0
16 not indicated as $x$ component or -2 not indicated as $y$ component without other work for M1			M0