Paper: 1MA1/3F						
Question	Answer	Mark	Mark scheme	Additional guidance		
11	110	M1	for use of angles in a quadrilateral add to 360° , eg $360 - 130 - 95 - 65$ (= 70)	May be seen in diagram or as a sum to 360°.		
Q1		M1	for 180 – "70" or for (130 + 95 + 65) – 180	(130 + 95 + 65) – 180 gains M2		
		A1	cao			

Paper: 1MA1/1F						
Question	Answer	Mark	Mark scheme	Additional guidance		
Q2	132	M1 M1	for finding an exterior angle eg $360 \div 6$ (= 60) or $360 \div 5$ (= 72) or an interior angle eg $180 \times 4 \div 6$ (= 120) or $180 \times 3 \div 5$ (= 108) for a complete method eg $360 - 120$ " – 108 " or 60 " + 72 "	Angles may be shown on the diagram Only award this mark for an angle that is not contradicted		
		A1	cao	Answer only award no marks		

Paper: 1MA1/3	Paper: 1MA1/3F						
Question	Working	Answer	Mark	Notes			
19 Q3		Shows polygon is a hexagon	M1 M1 A1 C1	for a complete method to find the interior or exterior angle of the dodecagon eg $180 - \frac{360}{12}$, $\frac{180}{12}(12-2)$ oe (= 150), $360 \div 12$ (=30) for a complete method to find the interior angle of polygon P eg at <i>B</i> or <i>C</i> : $360 - "150" - 90$ (= 120) or "30" + 90 (= 120) or for a complete method to find the interior or exterior angle of the hexagon eg $180 - \frac{360}{6}$, $\frac{180}{6}(6-2)$ oe (= 120), $360 \div 6$ (= 60) for 30 and 120 or 30 and 60 or 120 and 150 or 60 and 150 complete solution, fully supported by accurate figures			

Paper: 1MA1/1F							
Question	Answer	Mark	Mark scheme	Additional guidance			
28	24	P1	starts process, eg $x + 11x = 180$ or $180 \div 12$ (= 15) or interior angle + exterior angle = 180 oe				
Q4		P1	complete process to find number of sides, eg $360 \div (180 \div 12)$				
		A1	cao				

Paper: 1MA1/3F							
Question	Answer	Mark	Mark scheme	Additional guidance			
26	140	P1	for complete process to find sum of the interior angles of a pentagon eg $(5-2) \times 180$ or exterior $360 \div 5 = 72$, interior $180 - 72 = 108$, 108×5 OR for complete process to find sum of the exterior angles of the pentagon eg $(180 - x) + (180 - 2x) + (180 - 125) + (180 - 115) + (180 - 90)$	Must be a complete process that could lead to a figure of 540 if that process is evaluated incorrectly			
		A1	for sum of interior angles is 540 OR for sum of exterior angles is 360	360 must be identified as the sum of the exterior angles			
Q5		P1	for start to process to find angle ABC eg [angles in a pentagon] $-115 - 125 - 90$ (= 210) or $115 + 125 + 90 + x + 2x =$ [angles in a pentagon] OR (180 - x) + (180 - 2x) + (180 - 125) + (180 - 115) + (180 - 90) = 360	Award provided [angles in a pentagon] is greater than 400 Algebraic route needs to show both sides of the equation. LHS of equation may be simplified			
		P1	for process to find angle ABC eg "210" ÷ 3 (= 70), "210" divided in the ratio 2 : 1 or for process to find angle BCD eg $\frac{2}{3} \times$ "210" or for $3x =$ "210" or $-3x =$ -"210"	Award if 70 is given for either ABC or BCD on the diagram			
		A1	cao	Award marks for 140 on the diagram with working and not contradicted by the answer line. Award 0 marks for 140 without working.			

Paper: 1MA1	Paper: 1MA1/3F							
Question	Answer	Mark	Mark scheme	Additional guidance				
28	162 supported	M1	for method to find sum of the interior angles of a hexagon eg $(6-2) \times 180$ (= 720) oe OR for method to find sum of the interior angles of a pentagon, eg $(5-2) \times 180$ (= 540) OR for method to find angle <i>AFC</i> or <i>BCF</i> , eg $(360-2 \times 117) \div 2$ (= 63) OR for dropping a perpendicular from <i>A</i> or <i>B</i> to <i>ED</i> with 90° marked on <i>ED</i> and 27° at the top	Must be a complete process that would lead to a figure of 720 if evaluated correctly. For a pentagon there must be an indication that they have divided the hexagon into two halves. 63 may be shown on the diagram for angle <i>AFC</i> or angle <i>BCF</i>				
Q6		M1	for method to use ratio 2:1 eg marks as $2x$ and x or as x and $\frac{1}{2}x$ on diagram OR for ([angle sum of hexagon] -2×117) \div 6 (= 81) oe or ([angle sum of hexagon] \div 2 $-$ 117) \div 3 (= 81) oe or 117 + 117 + 2 x + 2 x + x + x = [angle sum of hexagon] oe OR eg ([angle sum of pentagon] $-$ 117 $-$ 180) \div 3 (= 81) oe or 117 + 180 + 2 x + x = [angle sum of pentagon] oe	Ratio must be used correctly if awarded for diagram Award provided [angle sum of hexagon] is greater than 700 or [angle sum of pentagon] is greater than 500 Algebraic route needs to show both sides of the equation. LHS of equation may be simplified.				
		M1	for finding angle $FED = 81$ or for finding angle $CDE = 81$ OR for complete process to find angle AFE eg ([angle sum of hexagon] -2×117) $\div 6 \times 2$ oe OR ([angle sum of pentagon] $-117 - 180$) $\div 3 \times 2$ oe	This may be shown by solving a correct equation to find the value of x.				
		C1	for accurate working leading to angle $AFE = 162$	Award marks for 162 on the diagram with working and not contradicted by the answer line. Award 0 marks for 162 without working.				

Paper: 1MA1/2F						
Question	Answer	Mark	Mark scheme	Additional guidance		
28	24	M1	for a complete method eg 360 ÷ 15 (=24)	If extra steps are shown do not award this		
Q7		A1	cao	mark.		

Paper: 1MA1	Paper: 1MA1/3F							
Question	Answer	Mark	Mark scheme	Additional guidance				
29	45	P1	for $180 - 117$ (=63) or states, or uses, exterior angle + $x = 117$	Angles may be shown on the diagram. Any angle labelled correctly as 63 and not contradicted scores this mark				
Q8		P1	for process to find the exterior or the interior angle of the pentagon, eg $360 \div 5 (=72)$ or $180 - (360 \div 5)$ $(=108)$ or $((5-2) \times 180) \div 5$ $(=108)$	Exterior = 108 or interior =72 does not score the mark				
		P1	for a complete process to find x , eg $180 - "72" - "63"$ or $"108" - "63"$ or $"117 - "72"$					
		A1	cao	An answer of 45 with no supporting working scores 0				