Question			Answer	Marks	Part Marks and Guidance	
1			- - 5	1		Condone $\frac{5}{1}$
			- $\frac{1}{30}$ -	1	For $\frac{1}{30}$ accept 0.033 or better	
			$\frac{3}{8}$ or $\frac{6}{16}$ - $\frac{15}{8}$ or $\frac{30}{16}$ or $1\frac{7}{8}$	1, 1FT	For $\frac{3}{8}$ accept 0.375	
					For $\frac{15}{8}$ accept 1.875. FT *their* values	

2			*h* = 30 with clear correct steps and reasons	5	eg ABT = BAT = 75 Alt(ernate) seg(ment) (AST) *h* = 180 – 75 – 75 Angles in (isosceles) triangle [= 180°]	
			As above but missing one reason or working unclear Or fully correct method, with full reasons, but one arithmetic slip	4-	For lower mark – *h* = 30 is reached with more than one reason missing or one reason missing and working unclear Or fully correct method, with one reason missing, and one arithmetic slip	
			Any correct angle calculation, clearly seen with reason	2-	For lower mark – one step seen without reason or a 'correct' reason given soi with an incorrect conclusion in that step May be on diagram	
			No relevant working	0		

3	**(a**	$4\sqrt{5}$	**2**	**M1** for $\sqrt{16}\times\sqrt{5}$ or $\sqrt{16\times5}$ or $\sqrt{4}\times\sqrt{20}$ or $\sqrt{4\times20}$ or $2\sqrt{20}$ or $4\times\sqrt{5}$	Condone extra $\times$ signs for M mark eg $2\times\sqrt{20}$
	(b)	$4\sqrt{3}$	**3**	**B2** for $\frac{12\sqrt{3}}{3}$ isw or $\frac{4\sqrt{3}}{1}$ or or $4\times\sqrt{3}$ Or **M1** for $\frac{12}{\sqrt{3}}\times\frac{\sqrt{3}}{\sqrt{3}}$ or $\frac{12\sqrt{3}}{\sqrt{9}}$ or $\sqrt{48}$	Condone extra $\times$ signs for B and M marks eg $\frac{4\times\sqrt{3}}{1}$ scores B2

4	**(a**	$p = 86°$ Cyclic quadrilateral	**1** **1**		
	(b)	Diameter > 8cm + convincing reasons	**3**	**B1** for angle in semicircle = 90° **B1** for BD not a diameter or BD is a chord	

5			15.9 to 16	**3**	**M2** for $\frac{304}{360}\times\pi\times6$ oe **Or B1** for $\frac{304}{360}$ or $\frac{56}{360}$ soi	

6			63 Alt(ernate) Seg(ment theorem)	1 1		

7			*p* = 50 with correct working and reasons, clearly laid out with correct spelling, punctuation and grammar.	**5**	Condone eg D = 70 if consistent with their argument for up to 4 marks.	E.g. ACE =110° (Angles round a point/ in a circle) ADB = 110° (Alt(ernate)/Z angles) ABD = 40° (Angles in a triangle) *p* = 50 (Angle in a semicircle / from a diameter) 'Parallel' is insufficient as a reason. Either alternate/Z angles or corresponding/F angles If totals quoted they must be correct eg Angles in a triangle = 150 does not count as a correct reason Note that 'alternate segment' is an incorrect reason.
			p = 50 with correct working and reasons and minor errors in spelling, punctuation and grammar. Or *p* = 50 with correct working with one incorrect or missing reason with correct spelling, punctuation and grammar Or 'correct' solution, with full reasons, with no more than one arithmetic slip	**4-**	For the lower mark reasons will be missing or incorrect. E.g. correct answer with no working Or for the lower mark, 'correct' solution with no more than one arithmetic slip and one incorrect or missing reason.	Angles (and reasons) may be marked on diagram.
			One angle seen with reason given e.g. ACE = 110° with 'Angles round a point' Or two angles found without reasons	**2-**	For the lower mark, either one correct angle seen or there would be a correct reason with an incorrect conclusion.	ABC marked with a 'square' counts as 1 angle found. eg 110° and 90°
			No correct work seen	**0**		

8	**(a**		54 Opp(osite) angles (in a) cyclic quad(rilateral) add to 180°	1 1	 'Add to 180°' can be implied (eg by correct answer) but not by 126°	Both marks are independent Condone reasonable abbreviations and poor spelling
	(b)		81			