Q	Marking Instructions	AO	Marks	Typical Solution
9(a)	Obtains correct length $\frac{w}{\sqrt{2}} = \frac{\sqrt{2}w}{2}$ ACF	AO1.1b	B1	$\frac{w}{\sqrt{2}}$
9(b)	Models the lengths as a geometric sequence	AO3.3	M1	$a = w$ and $r = \frac{1}{\sqrt{2}}$ $S_\infty = \frac{w}{1-\frac{1}{\sqrt{2}}}$ $\approx 3.41w < 3.5w$
	Finds the sum to infinity provided their $r < 1$	AO1.1a	M1	
	Uses their model to obtain the correct sum in terms of w	AO3.4	A1	
	Compares their sum with $3.5w$	AO2.4	E1	
9(c)	Explains that the model would have to include an additional 3 mm for each tile	AO3.5c	E1	The total length will now include an additional 3 mm for each tile. The total length will not have an upper limit.
	Explains that the total length will not have an upper limit Or The total length may now exceed $3.5w$	AO3.5a	E1	
	Total		**7**	