Question	Scheme	Marks	AOs
5(a)	Let C = the number of successful calls. $C \sim \mathrm{B}\left(9, \frac{1}{6}\right)$	M1	3.3
	$\mathrm{P}(C \geqslant 3) = 1 - \mathrm{P}(C \leqslant 2) = 0.1782\ldots$ **awrt 0.178**	A1	1.1b
		(2)	
(b)	Let X = the number of occasions when at least 3 calls are successful. $\mathrm{P}(X = 1) = 5 \times (\text{"0.1782..."}) \times (\text{"0.8217..."})^4$	M1	1.1b
	$= 0.4061\ldots$ **awrt 0.406**	A1	1.1b
		(2)	
(c)	$\mathrm{H}_0 : p = \frac{1}{6}$ $\quad$ $\mathrm{H}_1 : p > \frac{1}{6}$	B1	2.5
	Let R = the number of successful calls $R \sim \mathrm{B}\left(35, \frac{1}{6}\right)$	M1	3.3
	$\mathrm{P}(R \geqslant 11) = 1 - \mathrm{P}(R \leqslant 10) = 0.02...$	A1	3.4
	There is sufficient evidence to support that **Rowan** has more successful sales calls than Afrika.	A1	2.2b
		(4)	
			(8 marks)

Notes		
5(a)	**M1:**	For selecting the right model
	A1:	awrt 0.178
(b)	**M1:**	For $5 \times (\text{"their}(a)\text{"}) \times (\text{"1} - \text{their}(a)\text{"})^4$
	A1:	awrt 0.406
(c)	**B1:**	for correctly stating both hypotheses in terms of p or π Accept $p = 0.1\dot{6}$
	M1:	For selecting a suitable model. May be implied by a correct probability or CR
	A1:	Correct probability statement and answer of 0.02 or better (0.02318…) (CR $R \geqslant 11$ and either $\mathrm{P}(R \leqslant 9) = 0.9450$ or $\mathrm{P}(R \leqslant 10) = 0.9768$ or $1 - \mathrm{P}(R \leqslant 10) = 0.0232$)
	A1:	Dependent on M1A1 but can ignore hypotheses. For conclusion in context supporting **Rowan's** belief / **Rowan** is a better sales person
		Do not accept Rowan can reject H_0