MARK SCHEME

Question number	Scheme	Marks
1	$$\dfrac{\left(a+\sqrt{3}\right)}{\left(2-\sqrt{3}\right)} \times \dfrac{\left(2+\sqrt{3}\right)}{\left(2+\sqrt{3}\right)} = \dfrac{2a+\sqrt{3}\left(a+2\right)+3}{1}$$	M1
	$$2a+\sqrt{3}\left(a+2\right)+3 = 11+b\sqrt{3} \Rightarrow 11 = 2a+3, \ \ b = a+2$$	M1M1
	Solves the equations in a and b $\Rightarrow a = 4, \ b = 6$	A1
	ALT	[4]
	$$\dfrac{a+\sqrt{3}}{2-\sqrt{3}} = 11+b\sqrt{3} \Rightarrow a+\sqrt{3} = \left(2-\sqrt{3}\right)\left(11+b\sqrt{3}\right)$$	{M1}
	$$\Rightarrow a+\sqrt{3} = (22-3b)+(2b-11)\sqrt{3}$$ $$\Rightarrow a = 22-3b \text{ and } 1 = 2b-11$$ Solves the equations in a and b $\Rightarrow a = 4, \ b = 6$	{M1}{M1} {A1} [4]
		Total 4 marks

(a)		
M1	Multiply by $\dfrac{\left(2+\sqrt{3}\right)}{\left(2+\sqrt{3}\right)}$	
M1	For either $11 = 2a+3$ **or** $b = a+2$	
M1	For $11 = 2a+3$ **and** $b = a+2$	
A1	$a = 4, \ b = 6$	
ALT		
M1	Multiply by $2-\sqrt{3}$	
M1	For either $a = 22-3b$ **or** $1 = 2b-11$	
M1	For $a = 22-3b$ **and** $1 = 2b-11$	
A1	$a = 4, \ b = 6$	