Question	Scheme	Marks	AOs
15	$(x+7)(x+1)>2x-3 \Rightarrow x^2+8x+7>2x-3 \Rightarrow x^2+6x+10>0$	M1 A1	2.1 1.1b
	$(x+3)^2+1>0$ or $b^2-4ac=6^2-4\times1\times10<0$	M1	2.1
	e.g. $(x+3)^2+1>0$ or $b^2-4ac=-36$ with full reasoning Hence $(x+7)(x+1)>2x-3$ (for all $x\in\mathbb{R}$) *	A1*	2.4
			(4 marks)

Notes

M1: Attempts to multiply out and collect terms to achieve a 3TQ:
$(x+7)(x+1)>2x-3 \Rightarrow x^2+8x+7>2x-3 \Rightarrow \ldots x^2+\ldots x+\ldots>0$ oe

A1: $x^2+6x+10>0$ oe

M1: Shows that $(x+3)^2+1>0$ by completing the square or shows that the discriminant of their quadratic is negative

A1*: Either

- Explains that as $(x+3)^2\geq 0$ for all $x\in\mathbb{R}$ then $(x+3)^2+1>0$ so $(x+7)(x+1)>2x-3$
- Explains that since $x^2+6x+10$ is a positive quadratic and as the discriminant is negative (-36) there are no real roots hence $(x+7)(x+1)>2x-3$ (for all $x\in\mathbb{R}$)

Alternative proof

M1: Starts the proof with $(x+3)^2\geq 0$ and attempts to multiply out to achieve a 3-term quadratic

A1: $x^2+6x+9\geq 0$

M1: Shows that $x^2+8x+7\geq 2x-2$

A1*: Explains that $x^2+8x+7 > 2x-3$ and hence $(x+7)(x+1)>2x-3$ (for all $x\in\mathbb{R}$)