Question	Scheme	Marks
1	$4x^2-3x+7 \geqslant 4x+9$ $\Rightarrow 4x^2-7x-2\ldots 0 \Rightarrow (4x+1)(x-2)\ldots 0 \Rightarrow x=\ldots$ or $\Rightarrow 4x^2-7x-2\ldots 0 \Rightarrow x=\dfrac{-(-7)\pm\sqrt{(-7)^2-4(4)(-2)}}{2\times 4} \Rightarrow x=\ldots$ or $\Rightarrow 4x^2-7x-2\ldots 0 \Rightarrow 4\left(x^2-\dfrac{7}{4}x-\dfrac{1}{2}\right)\ldots 0 \Rightarrow 4\left(\left(x-\dfrac{7}{8}\right)^2-\left(\dfrac{7}{8}\right)^2-\dfrac{1}{2}\right)\ldots 0 \Rightarrow x=\ldots$	**M1**
	$x=-\dfrac{1}{4}, 2$	**A1**
	$x \leqslant "-\dfrac{1}{4}"$, $x \geqslant "2"$	**M1**
	$x \leqslant -\dfrac{1}{4}$ or $x \geqslant 2$ oe	**A1**
		(4)
		(4 marks)

Notes:

M1: Gathers terms to one side and solves their 3TQ which is not $4x^2-3x+7=0$ to obtain at least one critical value for *x*. Allow by factorisation, the quadratic formula or completing the square. Do not be concerned about the inequality symbol for the first two marks and the "…0" can be implied.

Note that $4x^2-7x-2\ldots 0 \Rightarrow \left(x+\dfrac{1}{4}\right)(x-2)\ldots 0 \Rightarrow x=\ldots$ scores M0

For completing the square, the conditions for their $4x^2-7x-2\ldots 0$ are as follows:

Either $4x^2-7x-2\ldots 0 \Rightarrow 4\left(x^2+bx+c\right)\ldots 0$ then as general guidance

Or $4x^2-7x-2\ldots 0 \Rightarrow \left(2x-\dfrac{7}{4}\right)^2 \pm q \pm 2\ldots 0 \Rightarrow x=\ldots$

A1: Both correct critical values. Allow unsimplified but must be single fractions e.g. allow $-\dfrac{2}{8}, \dfrac{16}{8}$

These values may be seen embedded in their final answer but the **first M1 must have been scored**.

M1: Chooses the <u>outside</u> region for their 2 critical values. Allow with < and > for this mark.

Condone poor notation e.g. $"-\dfrac{1}{4}" \geqslant x \geqslant "2"$ or e.g. $"-\dfrac{1}{4}" > x > "2"$ or e.g. $"2" < x < "-\dfrac{1}{4}"$

A1: Correct solution only – **depends on all previous marks**. Allow e.g. $x \leqslant -\dfrac{1}{4}$, $x \geqslant 2$;

$x \leqslant -\dfrac{1}{4}$ and $x \geqslant 2$; $\left(-\infty, -\dfrac{1}{4}\right], [2, \infty)$; $\left(-\infty, -\dfrac{1}{4}\right]$ or $[2, \infty)$; $\left(-\infty, -\dfrac{1}{4}\right]$ and $[2, \infty)$

Do **not** allow $-\dfrac{1}{4} \geqslant x \geqslant 2$; $x \leqslant -\dfrac{1}{4} \cap x \geqslant 2$; $\left(-\infty, -\dfrac{1}{4}\right] \cap [2, \infty)$

Allow unsimplified constants but must be single fractions e.g. allow $-\dfrac{2}{8}, \dfrac{16}{8}$ as above.