Question	Scheme	Marks	AOs
1	For an attempt to solve **Either** $3-2x=7+x \Rightarrow x=...$ **or** $2x-3=7+x \Rightarrow x=...$	M1	1.1b
	Either $x=-\frac{4}{3}$ **or** $x=10$	A1	1.1b
	For an attempt to solve **Both** $3-2x=7+x \Rightarrow x=...$ **and** $2x-3=7+x \Rightarrow x=...$	dM1	1.1b
	For **both** $x=-\frac{4}{3}$ **and** $x=10$ with no extra solutions	A1	1.1b
		(4)	
ALT	**Alternative by squaring:**		
	$(3-2x)^2=(7+x)^2 \Rightarrow 9-12x+4x^2=49+14x+x^2$	M1	1.1b
	$3x^2-26x-40=0$	A1	1.1b
	$3x^2-26x-40=0 \Rightarrow x=...$	dM1	1.1b
	For **both** $x=-\frac{4}{3}$ **and** $x=10$ with no extra solutions	A1	1.1b
			(4 marks)

Notes:

Note this question requires working to be shown not <u>just answers written down</u>. But correct equations seen followed by the correct answers can score full marks.

M1: Attempts to solve either correct equation.

Allow equivalent equations e.g. $3-2x=-7-x \Rightarrow x=...$

A1: One correct solution. Allow exact equivalents for $-\frac{4}{3}$ e.g. $-1\frac{1}{3}$ or $-1.\dot{3}$ but not e.g. -1.33

dM1: Attempts to solve both correct equations.

Allow equivalent equations e.g. $3-2x=-7-x \Rightarrow x=...$ **Depends on the first method mark.**

A1: For both $x=-\frac{4}{3}$ and $x=10$ with no extra solutions and neither clearly rejected but ignore any attempts to find the *y* coordinates whether correct or otherwise and ignore reference to e.g. x = -7 (from where $y = 7 + x$ intersects the *x*-axis) or $x=1.5$ (from finding the value of x at the vertex) as "extras". Allow exact equivalents for $-\frac{4}{3}$ e.g. $-1\frac{1}{3}$ or $-1.\dot{3}$ but not rounded e.g. -1.33

Isw if necessary e.g. ignore subsequent attempts to put the values in an inequality e.g. $-\frac{4}{3}<x<10$

But if e.g. $x=-\frac{4}{3}$ is obtained and a candidate states $x=\left|-\frac{4}{3}\right|$ then score A0

Alternative solution via squaring

M1: Attempts to square both sides. Condone poor squaring e.g. $(3-2x)^2 = 9 \pm 4x^2$ or $9 \pm 2x^2$

A1: Correct quadratic equation $3x^2 - 26x - 40 = 0$. The "= 0" may be implied by their attempt to solve. Terms must be collected but not necessarily all on one side so allow e.g. $3x^2 - 26x = 40$

dM1: Correct attempt to solve a **3 term** quadratic. See general guidance for solving a quadratic equation. The roots can be written down from a calculator so the method may be implied by their values. **Depends on the first method mark**.

A1: For both $x = -\frac{4}{3}$ and $x = 10$ with no extra solutions and neither clearly rejected but ignore any attempts to find the *y* coordinates and do not count e.g. *x* = -7 (from where *y* = 7 + *x* intersects the *x*-axis) or $x = 1.5$ (from finding the value of *x* at the vertex) as "extras". Allow exact equivalents for $-\frac{4}{3}$ e.g. $-1\frac{1}{3}$ or $-1.\dot{3}$ but not e.g. -1.33

Isw if necessary e.g. ignore subsequent attempts to put the values in an inequality e.g. $-\frac{4}{3} < x < 10$

But if e.g. $x = -\frac{4}{3}$ is obtained and a candidate states $x = \left|-\frac{4}{3}\right|$ then score A0