A1: $49 < k < 58$ **but condone** $49 < k$,, 58 or 49,, $k \leqslant 58$ or 49,, k,, 58 oe Must be in terms of k
e.g. may be written in alternative forms such as $(49, 58)$, $(49, 58]$, $[49, 58]$, $[49, 58)$ or
e.g. $k > 49 \cap k < 58$ or $58 > k > 49$ or $k > 49$, k,, 58 but do not allow e.g. "$k > 49$ or $k < 58$"

Question Number	Scheme	Marks
7 (i)	$(2\theta=)\arctan\left(\frac{5}{7}\right)$	M1A1
	$(\theta=)$ awrt $17.8°, 107.8°$	dM1A1 **(4)**
(ii)	$24\tan x = 5\cos x \Rightarrow 24\sin x = 5\cos^2 x$ oe	M1
	$\Rightarrow 24\sin x = 5(1-\sin^2 x)$	dM1
	$\Rightarrow 5\sin^2 x + 24\sin x - 5 = 0$	A1
	$\Rightarrow \sin x = \frac{1}{5}$	ddM1
	$\Rightarrow (x=)$ awrt $0.201, 2.940$	A1 **(5)**
		(9 marks)

In either part condone poor notation, mixed variables or omission of variables in their working provided the intention is clear or implied by further work.

There may be other methods e.g. using double angle formulae. Send to review if you think it may be credit-worthy.

(i) Note that answers only with no working seen scores 0 marks

M1: Attempts to use the relationship $\tan 2\theta = \dfrac{\sin 2\theta}{\cos 2\theta}$ to solve the equation.

Score for e.g. $7\sin 2\theta = 5\cos 2\theta \Rightarrow \tan 2\theta = \dfrac{5}{7}$ oe Condone $\tan 2\theta = \dfrac{7}{5}$ oe

(May use another variable e.g. $x = 2\theta$ provided the intention is clear)

A1: $(2\theta=)\arctan\left(\frac{5}{7}\right)$. May be implied by awrt $35.5°$ or a value for θ of awrt $17.8°$ **provided M1 has been scored.** Condone in radians.

dM1: Proceeds to find at least one value for θ Condone slips but the correct order of operations is required. May be implied by one correct value or truncated $17.7°$ (which may be in radians). You may need to check this on your calculator.

A1: $(\theta=)$ awrt $17.8°, 107.8°$ and no others inside the range **following all previous marks scored** (must be in degrees but condone the omission of the degrees symbol). Isw if they round incorrectly following correct answers seen.

Alt(i) Squaring both sides

M1: Squares both sides and uses $\pm\sin^2 x \pm \cos^2 x = \pm 1$ to produce a quadratic equation in $\sin x$ or $\cos x$. Condone slips on the coefficients when squaring.