Higher Maths
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(a) Express $4\sin x + 5\cos x$ in the form $k\sin(x+a)$ where $k>0$ and $0<a<2\pi$. **4**

(b) Hence solve $4\sin x + 5\cos x = 5.5$ for $0 \le x < 2\pi$. **3**

Answers:

(a) $\sqrt{41}\sin(x + 0.896)$

(b) $x = 0.137$ or $x = 1.212$