11 **(a)** Given that $2\cos x = 3\tan x$, show that $2\sin^2 x + 3\sin x - 2 = 0$. [3]

(b) Hence solve $2\cos\left(2\alpha + \frac{\pi}{4}\right) = 3\tan\left(2\alpha + \frac{\pi}{4}\right)$ for $0 < \alpha < \pi$ radians, giving your answers in terms of π. [4]

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