

6 (i) Express $7\cos x - 24\sin x$ in the form $R\cos(x + \alpha)$, where $0 < \alpha < \frac{\pi}{2}$. [3]

(ii) Write down the range of the function

$$f(x) = 12 + 7\cos x - 24\sin x, \quad 0 \leq x \leq 2\pi.$$

[2]