9 **(a)** The first term of a geometric progression in which all the terms are positive is 50. The third term is 32. Find the sum to infinity of the progression. [3]

(b) The first three terms of an arithmetic progression are $2 \sin x$, $3 \cos x$ and $(\sin x + 2 \cos x)$ respectively, where x is an acute angle.

    (i) Show that $\tan x = \frac{4}{3}$. [3]

    (ii) Find the sum of the first twenty terms of the progression. [3]