1. $$f(x) = (3x + 2)^2 + (2x - 3)^2 \qquad x \in \mathbb{R}$$

(a) Show that $f(x) = 13(x^2 + 1)$

(3)

(b) Hence find the minimum value of $f(x)$

(1)

A student states

"$f(x)$ is a multiple of 13 for all values of x"

(c) State whether the student's statement is always true, sometimes true or never true. Justify your answer fully.

(2)