1. (a) Find

$$\int \frac{1}{x^2 + 6x + 25}\,dx$$

(3)

(b) Hence find the exact value of

$$\int_{-3}^{1}\left(1 - \frac{25}{x^2 + 6x + 25}\right)dx$$

giving the answer in simplest form.

(3)

A student claims that the magnitude of the answer to part (b) gives the total area bounded

by the curve $y = 1 - \dfrac{25}{x^2 + 6x + 25}$ and the x-axis between the line $x = -3$ and the line $x = 1$

(c) State, with a reason, whether or not the student is correct.

(1)