2 **(a)** Find the coefficient of x^5 in the expansion of $(3-2x)^8$. [1]

(b) **(i)** Expand $(1+3x)^{0.5}$ as far as the term in x^3. [3]

(ii) State the range of values of x for which your expansion is valid. [1]

A student suggests the following check to determine whether the expansion obtained in part **(b)(i)** may be correct.

"Use the expansion to find an estimate for $\sqrt{103}$, correct to five decimal places, and compare this with the value of $\sqrt{103}$ given by your calculator."

(iii) Showing your working, carry out this check on your expansion from part **(b)(i)**. [3]