6.

$$f(x) = \frac{10}{\sqrt{4 - 3x}}$$

(a) Show that the first 4 terms in the binomial expansion of f(x), in ascending powers of x, are

$$A + Bx + Cx^2 + \frac{675}{1024}x^3$$

where A, B and C are constants to be found. Give each constant in simplest form.

(4)

Given that this expansion is valid for $|x| < k$

(b) state the largest value of k.

(1)

By substituting $x = \frac{1}{3}$ into f(x) and into the answer for part (a),

(c) find an approximation for $\sqrt{3}$

Give your answer in the form $\frac{a}{b}$ where a and b are integers to be found.

(2)