6 Given that $(8 + 3x)^{\frac{1}{3}}$ can be expressed in the form $p(1 + qx)^{\frac{1}{3}}$ where p and q are constants,

(a) find the value of p and the value of q

(2)

(b) Hence, expand $(8 + 3x)^{\frac{1}{3}}$ in ascending powers of x up to and including the term in x^2, expressing each coefficient as an exact fraction in its lowest terms.

(3)

Using the expansion found in part (b) with a suitable value of x

(c) show that $\sqrt[3]{9} \approx \frac{599}{288}$

(2)

Question 6 continued

(Total for Question 6 is 7 marks)