9 (a) Find the first three terms, in ascending powers of x, of the binomial expansion of

$$(1+x)^{-\frac{1}{2}}$$

[2 marks]

9 (b) A student substitutes $x = 2$ into the expansion of $(1+x)^{-\frac{1}{2}}$ to find an approximation for $\frac{1}{\sqrt{3}}$

Explain the mistake in the student's approach.

[1 mark]

9 (c) By substituting $x = -\frac{1}{4}$ in your expansion for $(1+x)^{-\frac{1}{2}}$ find an approximation for $\frac{1}{\sqrt{3}}$

Give your answer to three significant figures.

[3 marks]