

3.

**In this question you must show all stages of your working.
Solutions relying on calculator technology are not acceptable.**

(a) Fully factorise

$$8x^3 + 31x^2 - 4x$$

(2)

(b) Hence solve

$$8 \times 64^y + 31 \times 16^y - 4 \times 4^y = 0$$

(2)