Higher Maths
SQA 2018 Paper 1
Question 12

Vectors $\mathbf{a}$ and $\mathbf{b}$ are such that $\mathbf{a} = 4\mathbf{i} - 2\mathbf{j} + 2\mathbf{k}$ and $\mathbf{b} = -2\mathbf{i} + \mathbf{j} + p\mathbf{k}$.

(a) Express $2\mathbf{a} + \mathbf{b}$ in component form. **1**

(b) Hence find the values of p for which $|2\mathbf{a} + \mathbf{b}| = 7$. **3**

Answers:

(a) $\begin{pmatrix} 6 \\ -3 \\ 4+p \end{pmatrix}$

(b) $p = -2,\ p = -6$