

$$\begin{aligned}
 \text{a) } \sum_1^m (a_i + b_i)^2 &= \sum_1^m (a_i^2 + b_i^2 + 2a_i b_i) \\
 &= \sum_1^m a_i^2 + \sum_1^m b_i^2 + \sum_1^m 2a_i b_i \\
 &= \sum_1^m a_i^2 + \sum_1^m b_i^2 + 2 \sum_1^m a_i b_i \\
 &= \alpha + \beta + 2\beta
 \end{aligned}$$

~~Handwritten scribbles~~