

So

$$\begin{aligned} V(X) &= \frac{1}{3}(a^2 + ab + b^2) - \left( \frac{a+b}{2} \right)^2 \\ &= \frac{a^2 + ab + b^2}{3} - \frac{a^2 + 2ab + b^2}{4} \\ &= \frac{a^2 - 2ab + b^2}{12} = \frac{(b-a)^2}{12} \end{aligned}$$
