

A trick

May 3, 2023

$$\begin{aligned}(a-b)(a-c) &= a^2 - ac - ab + bc \\ &= \frac{2a^2 - 2ac - 2ab + 2bc}{2} \\ &= \frac{a^2 - 2ac + a^2 - 2ab + 2bc + c^2 - c^2 + b^2 - b^2}{2} \\ &= \frac{(a-c)^2 + (a-b)^2 - (b-c)^2}{2}\end{aligned}$$