1. Simplify the following expressions using Boolean algebraic laws. Give each step of your simplification and denote which laws you're using for each step. Do not skip or combine steps!

   (a) $A \cdot (A + B \cdot B) + (B + A) \cdot (A + B)$

$A \cdot (\overline{A} + BB) + \overline{(B + A)} \cdot (\overline{A} + B)$	Demorgan's Law
$A \cdot (\overline{A} + BB) + (\overline{B} \cdot \overline{A}) \cdot (\overline{A} + B)$	Idempotent Law
$A \cdot (\overline{A} + B) + (\overline{B} \cdot \overline{A}) \cdot (\overline{A} + B)$	Distributive Law
$(\overline{A} + B)(A + \overline{B} \cdot \overline{A})$	Distributive Law
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