Exercise on Regular Languages

1. Consider the following languages, defined over the alphabet $\Sigma = \{a, b\}$

$L_1 = \{a^p b^n a^q \mid n, p, q \geq 0, p + q = n\}$;
$L_2 = \{a^p a^n a^q \mid n, p, q \geq 0, p + q = n\}$;
$L_3 = \{a^p b^n b^q \mid n, p, q \geq 0, p + q = n\}$.

For each of the above languages, state whether it belongs to the class REG.