(Q3)

We begin with a few definitions:

- Let s be a fixed student taking MAT137.

- Let M be the set of MAT137 students.

- Let F be the set of friends of s.

- Let N_F be a set of friends of s with first name starting with P.

- Let N_L be a set of friends of s with last name starting with P.

Thus, the statement

> There is a student taking MAT137 at UTM who has no friends whose first name and last name begin with the letter P.

This can be expressed as:

$$\exists s \in M \text{ s.t. } \forall p \in F, p \notin N_F \text{ and } p \notin N_L$$

This negates to:

$$\forall s \in M, \exists p \in F \text{ s.t. } p \in N_F \text{ or } p \in N_L$$

Which can be expressed in plain English as:

> All students taking MAT137 at UTM have at least one friend whose first or last name begins with P.