$\boxed{0}$ where

$$Q = \tilde{A} \otimes P/AP \qquad P \in \mathcal{P}(A)$$

Thus $P, Q \in \mathcal{P}(A)$ and we have an isomorphism $P/AP \simeq Q/AQ$. Now suppose I lift to get maps

$$P \rightleftarrows Q$$

inverses modulo a. In the end the point is that we have a complex of A modules

$$P \longrightarrow Q$$

which should be ~~homotopy~~ somehow equivalent to a complex lying in the Karoubi subcategory generated by Ae.

Do carefully.

$$P \underset{q}{\overset{p}{\rightleftarrows}} Q$$

$$1 - qp = x$$
$$1 - pq = y$$

$$y : Q \longrightarrow AQ \simeq Ae \otimes_B eQ$$

$$y : Q \longrightarrow AQ = A \otimes_A Q = Ae \otimes_B eQ$$

So can write $y = \sum_{i=1}^{n} a_i e \otimes_B e q_i$. Then you obtain

$$\begin{array}{ccc} & & Q \\ (Ae)^n & \longrightarrow & Q \end{array}$$

$\boxed{\text{II}}$ ~~so what~~

$$y \in \operatorname{Hom}_A(Q, Ae \otimes_B eQ)$$

$$= \underbrace{\operatorname{Hom}_A(Q, \tilde{A}) \otimes_A Ae \otimes_B eQ}$$

$$= \operatorname{Hom}_A(Q, Ae) \otimes_B eQ$$

$$f_i \otimes eq_i$$

Then we take

$$(Ae)^n \underset{eq_i}{\overset{(f_i)}{\rightleftarrows}} Q \qquad \text{composite is } y.$$

Thus we ~~have~~ can add.,

$$P \oplus (Ae)^n \underset{(q, (f_i))}{\overset{(p + (eq_i))}{\rightleftarrows}} Q$$

so what happens is we get a projection on $P \oplus (Ae)^n$, i.e. can split off Q from ~~$A \oplus Ae$~~ $P \oplus (Ae)^n$. Let R be the complement

$$0 \longrightarrow R \longrightarrow P \oplus (Ae)^n \longrightarrow Q \longrightarrow 0$$

and when we reduce modulo A. Thus $R \in P(\tilde{A})$ and $AR = R$. Check this implies R summand of