b) $A \to B$ is a local equivalence:

$\forall$ local $X = X \otimes \mathbb{Z}[S^{-1}]$,

$$\hom(A, X) \xleftarrow{\cong} \hom(B, X) \iff$$

$$\hom(A \otimes \mathbb{Z}[S^{-1}], X) \xleftarrow{\cong} \hom(B \otimes \mathbb{Z}[S^{-1}], X)$$

$$\iff A \otimes \mathbb{Z}[S^{-1}] \xrightarrow{\cong} B \otimes \mathbb{Z}[S^{-1}].$$

c) localization ~~exists~~ ists:

$$X \xrightarrow{i} LX = X \otimes \mathbb{Z}[S^{-1}] :$$

1) LX is local
2) i is a local equiv.

e.g. $\mathbb{Z} \otimes \mathbb{Z}_{(p)} = \mathbb{Z}_{(p)}$

$\mathbb{Z}/p^r \otimes \mathbb{Z}_{(p)} = \mathbb{Z}/p^r$

$\mathbb{Z}/\ell \otimes \mathbb{Z}_{(p)} = 0, \ (\ell, p) = 1$