1) The laws of mechanics are the same in all inertial reference frames.

2) The ball is moving in from $S$ to the right. Frank also sees Mary moving to the right.

Frank observes Mary moving to the left and throwing a ball toward her.

b) $v' = $ velocity of the ball in $S'$
$v'_x = $ velocity of Frank in $S'$ = $-150 \text{ km/h}$

Galilean Relativity:

\[ v' = v + v'_x = 150 \text{ km/h} - 150 \text{ km/h} \]

\[ v' = 0 \]