## Translations

A translation that maps $X$ into $X^{\prime}$ maps every point $P$ into $P^{\prime}$ such that:

1. If $P$ does not lie on $\overparen{X X^{\prime}}$, then $P X X^{\prime} P$ is a parallelogram.
2. If $P$ does lie on $\overleftrightarrow{X X^{\prime}}$, then there is a segment $Y Y^{\prime}$ such that both $X Y Y^{\prime} X^{\prime}$ and $P Y Y Y^{\prime} P^{\prime}$ are parallelograms.


The notation we use for a translation is that is moved graphically is $\mathrm{T}_{\text {(SM) }}(\mathbf{x}, \mathbf{y})$.
That is read the point ( $x, y$ ) is mapped under the translation SM. We look at SM and use the slope to move the ordered pair.


