

axis of central reflection

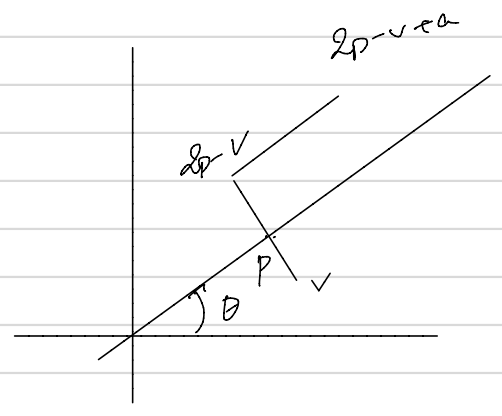
Let p be the foot of the perpendicular to the axis of reflection.

Translate $2p-v$ by a gives $2p-v+ta$

Midpt of $2p-v+ta$ and v is:

$$\boxed{p + \frac{a}{2}} \rightarrow \text{reflection thru } p + \frac{a}{2}.$$

SPECIAL CASE: Direction of translation \parallel to axis of reflection.



The product fixes no point when $a \neq 0$.

This can't be a reflection, rotation & can't be a translation.

Def: A GLIDE is a reflection in a line followed by a translation parallel to the line of reflection.

GENERAL CASE: Write $a = b + c$ when

b is perpendicular to the axis
 c is parallel to it.

$$\sim M_{\theta/2}(T_a(v)) = M_{\theta}(v) + a = \underbrace{(M_{\theta}(v) + b)}_{\text{by glide}} + c$$