Transformations

Short-answer problems about the definitions of basic rigid motions and dilations.

To define a translation, rotation, or reflection, we specify the image of a generic point P under the transformation as specified.

Question 1 *Under a **rotation** about center O counterclockwise by an angle ϑ, the image of P is a point Q so that $OQ =$ $\boxed{OP}$ and $m\angle POQ = \vartheta$, measured counterclockwise from $\overrightarrow{OP}$ to $\overrightarrow{OQ}$ if $\vartheta > 0$ and measured clockwise if $\vartheta < 0$. If $P = O$ then $Q = O = P$.*

Question 2 *Under a **translation** by the distance and direction from A to B, the image of P is a point Q so that $\overline{PQ} \parallel \overline{AB}$, $PQ =$ $\boxed{AB}$, and $\overrightarrow{PQ}$ is in the same direction as $\overrightarrow{AB}$.*

Question 3 *Under a **reflection** about a line ℓ, if P is on ℓ, then P is mapped to itself. If P is not on ℓ, then the image of P is a point Q so that ℓ is the* $\boxed{perpendicularbisector}$ *of segment* $\boxed{PQ}$.

Question 4 *Under a **dilation** about center O and scale factor $r > 0$, the image of P is a point Q so that Q lies on $\overrightarrow{OP}$ and $OQ =$ $\boxed{rOP}$. The image of O is* $\boxed{O}$.

Learning outcomes:
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