1. (a) In the diagram below, $\overline{A B^{\prime}}$ is the image of $\overline{A B}$ under a reflection. Find and clearly indicate the line of reflection.
(b) Create a dilation with scale factor 2 for $\overline{A B}$, labelling your answer $\overline{A^{\prime \prime} B^{\prime \prime}}$.

2. (a) In the diagram below, $\overline{C^{\prime} D^{\prime}}$ is the image of $\overline{C D}$ under a rotation. Find and clearly indicate the center of rotation.
(b) Create a dilation with scale factor $1 / 3$ for $\overline{C D}$ above, labelling your answer $\overline{C^{\prime \prime} D^{\prime \prime}}$.

3. For the figure at the bottom, find the following, if possible; if not possible, say so.
(a) A point around which $A$ rotates $120^{\circ}$ to land on $E$
(b) A second point around which $A$ rotates $120^{\circ}$ to land on $E$
(c) A second point around which $A$ rotates $90^{\circ}$ to land on $D$
(d) A line through which $A$ reflects to land on $D$
(e) A line through which $A$ reflects to land on $E$
(f) A line through which $A$ reflects to land on $G$
(g) A point around which $O$ rotates $60^{\circ}$ to land on $F$
(h) A line through which $\overline{I K}$ reflects to land on $\overline{G E}$
(i) A line through which $\overline{L E}$ reflects to land on $\overline{F A}$
(j) A line through which $\overline{J A}$ reflects to land on $\overline{K B}$

