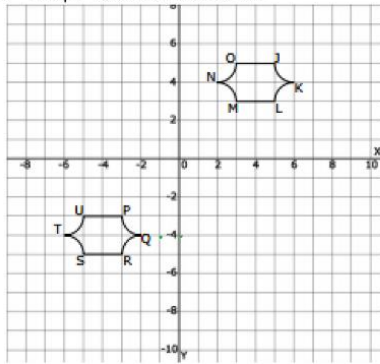


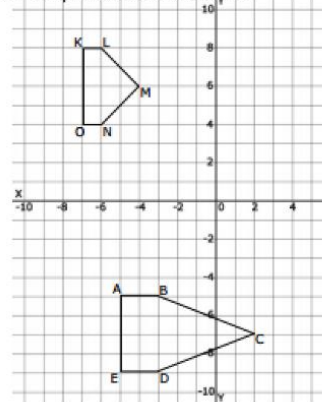
Use the definition of congruence in terms of rigid motion to determine whether the two figures are congruent, explain your answers.

1. Map PQRSTU to JKLMNO



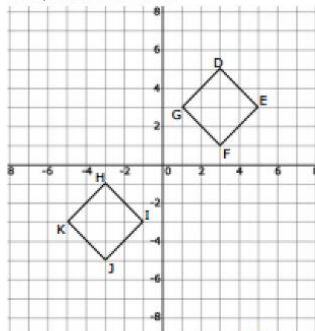
PQRSTU can be mapped to JKLMNO by a translation of $(x, y) \rightarrow (x+6, y+8)$. A translation is a rigid motion. Rigid motions create congruent figures. Thus $PQRSTU \cong JKLMNO$.

2. Map KLMNO to ABCDE



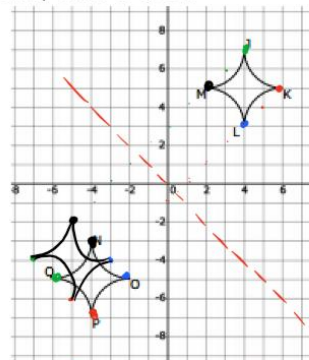
KLMNO cannot be mapped to ABCDE by any rigid motions. Only rigid motions create congruent figures. Thus, $KLMNO \not\cong ABCDE$.

3. Map DEFG to JKHI



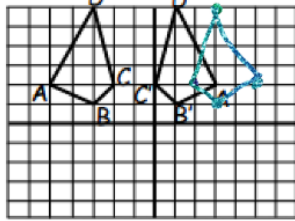
DEFG can be mapped onto JKHI by a rotation of 180° about the origin. A rotation is a rigid motion. Rigid motions create congruent figures. Thus, $DEFG \cong JKHI$.

4. Map JKLM to QPON



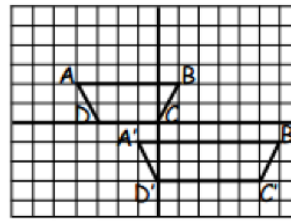
JKLM can be mapped onto QPON by a reflection over $y = -x$ then a translation $(x, y) \rightarrow (x+1, y-1)$. A reflection then translation is a sequence of rigid motions. Rigid motions create congruent figures, thus $JKLM \cong QPON$.

5. Map $ABCD$ to $A'B'C'D'$



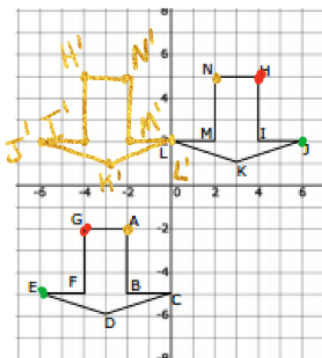
$ABCD$ can be mapped to $A'B'C'D'$ by a reflection over the y -axis, then a translation $(x,y) \rightarrow (x-2,y)$. A reflection then a translation is a sequence of rigid motions. Rigid motions create congruent figures. Thus, $ABCD \cong A'B'C'D'$

6. Map $ABCD$ to $A'B'C'D'$



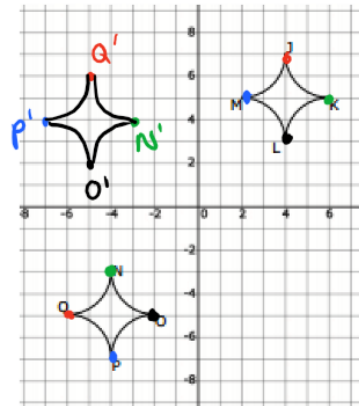
$ABCD$ cannot be mapped onto $A'B'C'D'$ by a sequence of rigid motions. Only rigid motions create congruent figures. Thus, $ABCD \not\cong A'B'C'D'$

7. Map $H'I'K'L'M'N'$ to $G'F'E'D'B'A'$



$H'I'K'L'M'N'$ can be mapped onto $G'F'E'D'B'A'$ by a reflection over the y -axis, then a translation $(x,y) \rightarrow (x,y-7)$. A reflection then a translation is a sequence of rigid motions. Rigid motions create congruent figures. Thus, $H'I'K'L'M'N' \cong G'F'E'D'B'A'$

8. Map $NOPQ$ to $KLMJ$



$NOPQ$ can be mapped onto $KLMJ$ by a rotation of 90° CW about the origin then a translation $(x,y) \rightarrow (x+9,y+1)$. A rotation then translation is a sequence of rigid motions. Rigid motions create congruent figures. Thus $NOPQ \cong KLMJ$