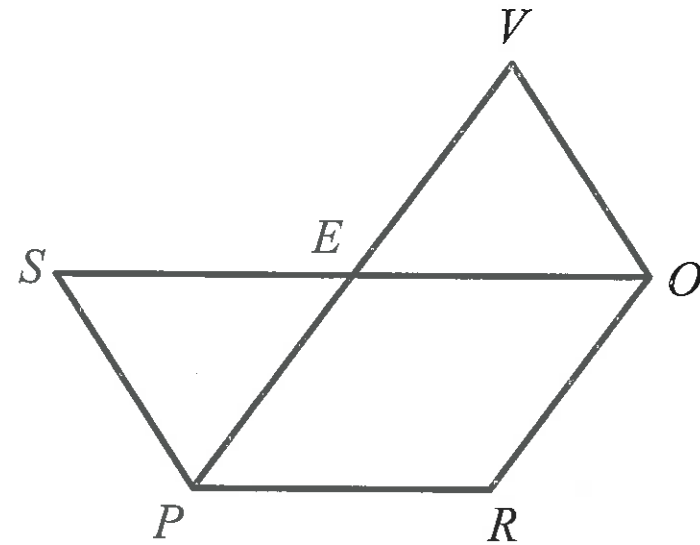A. Given: $\overline{PV}$ and $\overline{SO}$ intersect at E

$\angle R \cong \angle PEO$

Prove: $\angle R \cong \angle SEV$
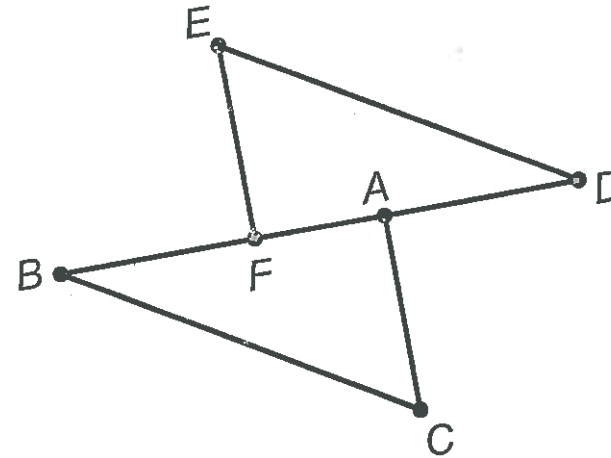

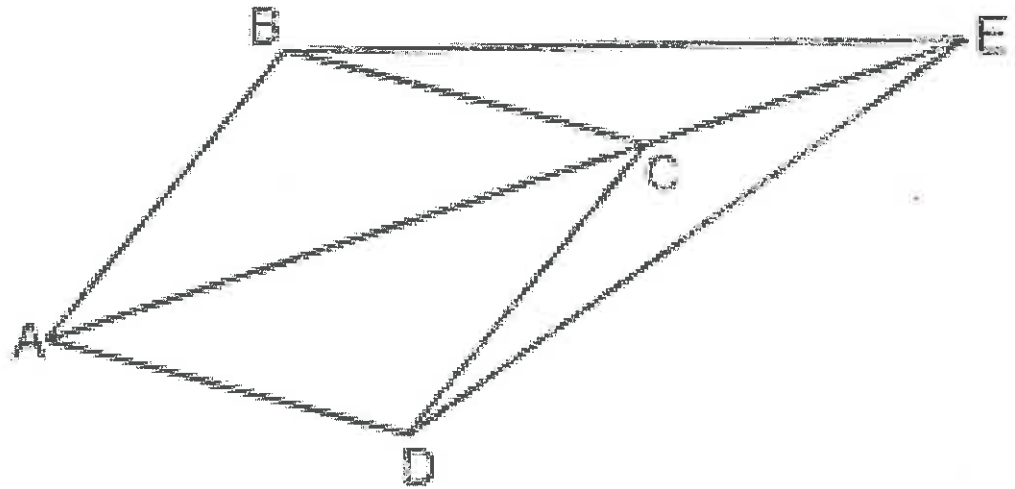| Statements	Reasons
$\overline{PV}$ and $\overline{SO}$ intersect at E	Given
$\angle PEO$ vertical to $\angle SEV$	Non-adjacent angles formed by 2 intersecting lines are vertical
$\angle PEO \cong \angle SEV$	Vertical angles are congruent
$\angle R \cong \angle PEO$	Given
$\angle R \cong \angle SEV$	Transitive

B. Given: $\overline{BFAD}$

$\angle DAC \cong \angle BAC$

Prove: $\overline{CA} \perp \overline{BD}$

Statements	Reasons
$\overline{BFAD}$	Given
$\angle CAB$ supp. to $\angle CAD$	Adjacent angles formed by 2 intersecting lines are supplementary
$\angle DAC \cong \angle BAC$	Given
$\angle CAB$ and $\angle CAD$ are Rt. $\angle$'s	Angles that are congruent and supplementary are both right
$\overline{CA} \perp \overline{BD}$	Perpendicular lines meet at right angles

C. Given: $\overline{AE}$ bisects $\angle BCD$
Prove: $\angle BCE \cong \angle DCE$

Statements	Reasons
$\overline{AE}$ bisects $\angle BCD$	Given
$\angle BCA \cong \angle DCA$	Angle bisector divides an angle into 2 congruent angles
$\angle DCA$ supp. to $\angle DCE$	Adjacent angles formed by 2 intersecting lines are supplementary
$\angle BCA$ sup to $\angle BCE$	Adjacent angles formed by 2 intersecting lines are supplementary
$\angle BCE \cong \angle DCE$	Congruent angles have congruent supplements

D. Given: $\overline{PV}$ bisects $\overline{SO}$ at E

$\overline{PR} \cong \overline{SE}$

Prove: $\overline{PR} \cong \overline{EO}$
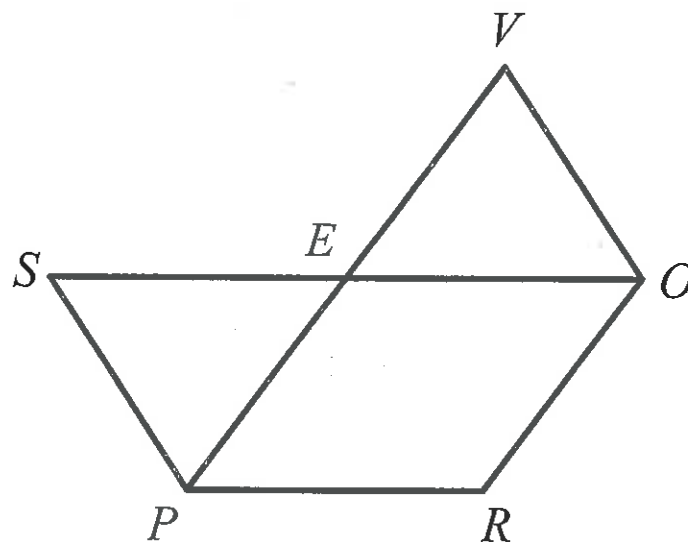
Statements	Reasons
$\overline{PV}$ bisects $\overline{SO}$ at E	Given
E midpoint of $\overline{SO}$	Segment bisector cuts through the midpoint of a segment
$\overline{SE} \cong \overline{OE}$	Midpoint divides a segment into two congruent segments
$\overline{PR} \cong \overline{SE}$	Given
$\overline{PR} \cong \overline{EO}$	Transitive