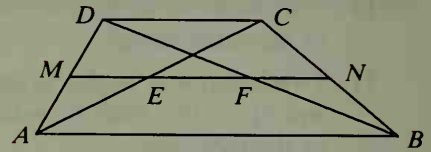
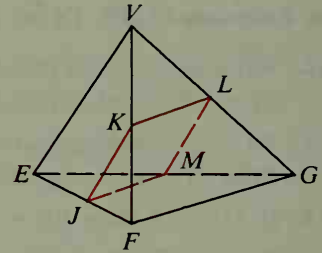


$ABCD$ is a trapezoid with median \overline{MN} .

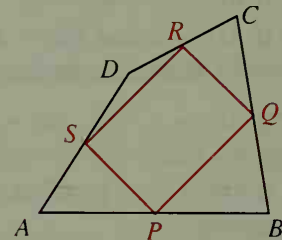
30. If $DC = 6$ and $AB = 16$, find ME , FN , and EF .
 31. Prove that $EF = \frac{1}{2}(AB - DC)$.
 32. If $DC = 3x$, $AB = 2x^2$, and $EF = 7$, find the value of x .



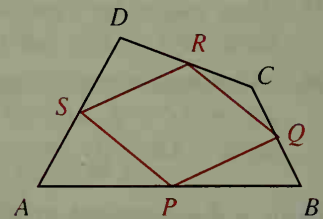
- C** 33. \overline{VE} and \overline{FG} are congruent. J , K , L , and M are the midpoints of \overline{EF} , \overline{VF} , \overline{VG} , and \overline{EG} . What name best describes $JKLM$? Explain.



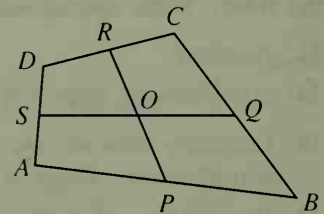
34. When the midpoints of the sides of quad. $ABCD$ are joined, rectangle $PQRS$ is formed.
 a. Draw other quadrilaterals $ABCD$ with this property.
 b. What must be true of quad. $ABCD$ if $PQRS$ is to be a rectangle?



35. When the midpoints of the quad. $ABCD$ are joined, rhombus $PQRS$ is formed.
 a. Draw other quadrilaterals $ABCD$ with this property.
 b. What must be true of quad. $ABCD$ if $PQRS$ is to be a rhombus?



36. P , Q , R , and S are the midpoints of the sides of quad. $ABCD$. In this diagram \overline{PR} and \overline{SQ} have the same midpoint, point O . If you think this will be the case for *any* quad. $ABCD$, prove it. If not, tell what other information you need to know about quad. $ABCD$ before you can conclude that \overline{PR} and \overline{SQ} have the same midpoint.



Challenge

The three-dimensional figure shown has six congruent edges. Draw four such figures. On your diagrams show how a plane can intersect the figure to form (a) a triangle with three congruent sides, (b) a triangle with sides not all congruent, (c) a rectangle, and (d) an isosceles trapezoid.

