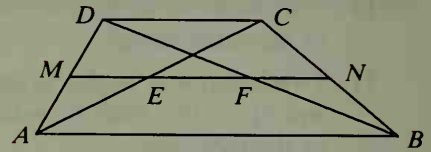
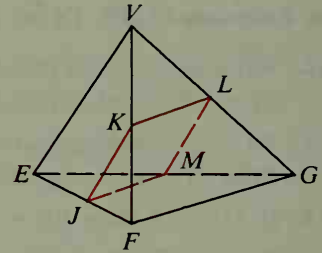


$ABCD$  is a trapezoid with median  $\overline{MN}$ .

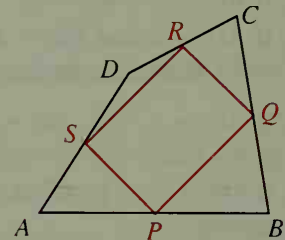
30. If  $DC = 6$  and  $AB = 16$ , find  $ME$ ,  $FN$ , and  $EF$ .  
 31. Prove that  $EF = \frac{1}{2}(AB - DC)$ .  
 32. If  $DC = 3x$ ,  $AB = 2x^2$ , and  $EF = 7$ , find the value of  $x$ .



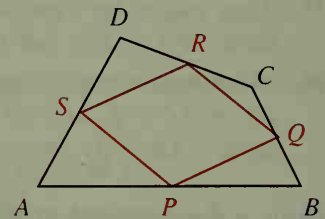
- C** 33.  $\overline{VE}$  and  $\overline{FG}$  are congruent.  $J$ ,  $K$ ,  $L$ , and  $M$  are the midpoints of  $\overline{EF}$ ,  $\overline{VF}$ ,  $\overline{VG}$ , and  $\overline{EG}$ . What name best describes  $JKLM$ ? Explain.



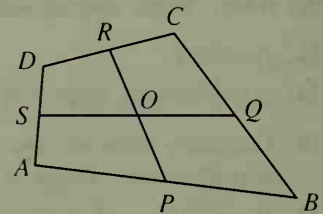
34. When the midpoints of the sides of quad.  $ABCD$  are joined, rectangle  $PQRS$  is formed.  
 a. Draw other quadrilaterals  $ABCD$  with this property.  
 b. What must be true of quad.  $ABCD$  if  $PQRS$  is to be a rectangle?



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.

