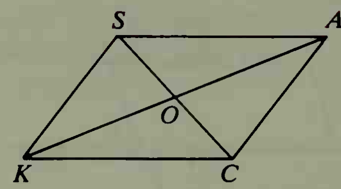
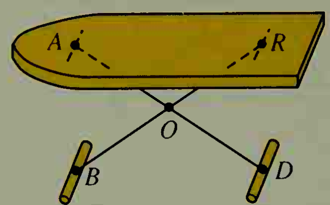
Written Exercises

State the principal definition or theorem that enables you to deduce, from the information given, that quad. *SACK* is a parallelogram.

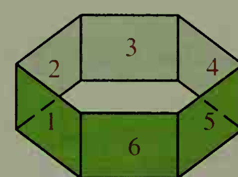
A



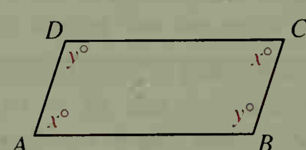
1. $\overline{SA} \parallel \overline{KC}$; $\overline{SK} \parallel \overline{AC}$
2. $\overline{SA} \cong \overline{KC}$; $\overline{SK} \cong \overline{AC}$
3. $\overline{SA} \cong \overline{KC}$; $\overline{SA} \parallel \overline{KC}$
4. $SO = \frac{1}{2}SC$; $KO = \frac{1}{2}KA$
5. $\angle SKC \cong \angle CAS$; $\angle KCA \cong \angle ASK$
6. Suppose you know that $\triangle SOK \cong \triangle COA$. Explain how you could prove that quad. *SACK* is a parallelogram.
7. The legs of this ironing board are built so that $BO = AO = RO = DO$. What theorem guarantees that the board is parallel to the floor ($\overline{AR} \parallel \overline{BD}$)?



8. The quadrilaterals numbered 1, 2, 3, 4, and 5 are parallelograms. If you wanted to show that quadrilateral 6 is also a parallelogram, which of the five methods listed on page 172 would be easiest to use?



9. What theorem in this section is the converse of each theorem?
   a. Theorem 5-1 **b.** Theorem 5-2 **c.** Theorem 5-3
10. Give the reasons for each step in the following proof of Theorem 5-6.
    Given: $m\angle A = m\angle C = x$; $m\angle B = m\angle D = y$
    Prove: *ABCD* is a ▱.



Proof:

Statements	Reasons
1. $m\angle A = m\angle C = x$; $m\angle B = m\angle D = y$	1. ?
2. $2x + 2y = 360$	2. ?
3. $x + y = 180$	3. ?
4. $\overline{AB} \parallel \overline{DC}$ and $\overline{AD} \parallel \overline{BC}$	4. ?
5. *ABCD* is a ▱.	5. ?