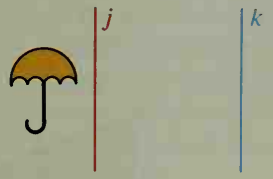
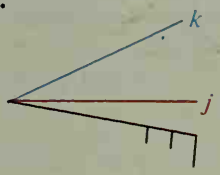
Copy the figure on the chalkboard and find its image by $R_k \circ R_j$. Then copy the figure again and find its image by $R_j \circ R_k$.

9.



10.



11. Prove Theorem 14-6. (*Hint*: Let S and T be isometries. Consider a $\overline{PQ}$ under $S \circ T$.)

12. Explain how the Corollary follows from Theorem 14-8.

Written Exercises

A

1. If $f(x) = x^2$ and $g(x) = 2x - 7$, evaluate the following.

a. $(g \circ f)(2)$ **b.** $(g \circ f)(x)$ **c.** $(f \circ g)(2)$ **d.** $(f \circ g)(x)$

2. Repeat Exercise 1 if $f(x) = 3x + 1$ and $g(x) = x - 9$.

3. If $h: x \to \frac{x+1}{2}$ and $k: x \to x^3$, complete the following.

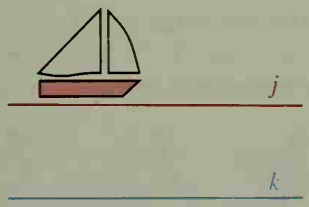
a. $k \circ h: 3 \to$? **b.** $k \circ h: 5 \to$? **c.** $k \circ h: x \to$?

d. $h \circ k: 3 \to$? **e.** $h \circ k: 5 \to$? **f.** $h \circ k: x \to$?

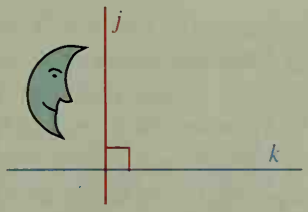
4. Repeat Exercise 3 if $h: x \to x^2 - 1$ and $k: x \to 2x + 7$.

Copy each figure and find its image under $R_k \circ R_j$. Then copy the figure again and find its image under $R_j \circ R_k$.

5.



6.



Copy each figure twice and show the image of the red flag under each of the composites given.

7. **a.** $H_B \circ H_A$ **b.** $H_A \circ H_B$

8. **a.** $R_j \circ H_C$ **b.** $H_C \circ R_j$

9. **a.** $H_E \circ D_{E,\frac{1}{3}}$ **b.** $D_{E,\frac{1}{3}} \circ H_E$