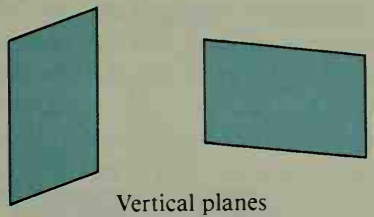
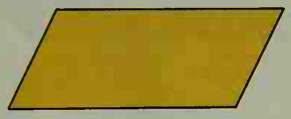
You can think of the ceiling and floor of a room as parts of *horizontal planes*. The walls are parts of *vertical planes*. Vertical planes are represented by figures like those shown in which two sides are vertical. A horizontal plane is represented by a figure like that shown, with two sides horizontal and no sides vertical.



Vertical planes



Horizontal plane

B **27.** Can two horizontal planes intersect?

28. **a.** Can two vertical planes intersect?

b. Suppose a line is known to be in a vertical plane. Does the line have to be a vertical line?

Sketch and label the figures described. Use dashes for hidden parts.

29. Vertical line l intersects a horizontal plane M at point O.

30. Horizontal plane P contains two lines k and n that intersect at point A.

31. Horizontal plane Q and vertical plane N intersect.

32. Vertical planes X and Y intersect in $\overleftrightarrow{AB}$.

33. Point P is not in plane N. Three lines through point P intersect N in points A, B, and C.

C **34.** Three vertical planes intersect in a line.

35. A vertical plane intersects two horizontal planes in lines l and n.

36. Three planes intersect in a point.

Challenge

If the area of the red square is 1 square unit, what is the area of the blue square? Give a convincing argument.