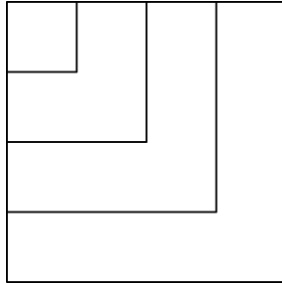


Problem Set

1. How is the length of the side of a square related to its area and perimeter? The diagram below shows the first four squares stacked on top of each other with their upper left-hand corners lined up. The length of one side of the smallest square is 1 foot.

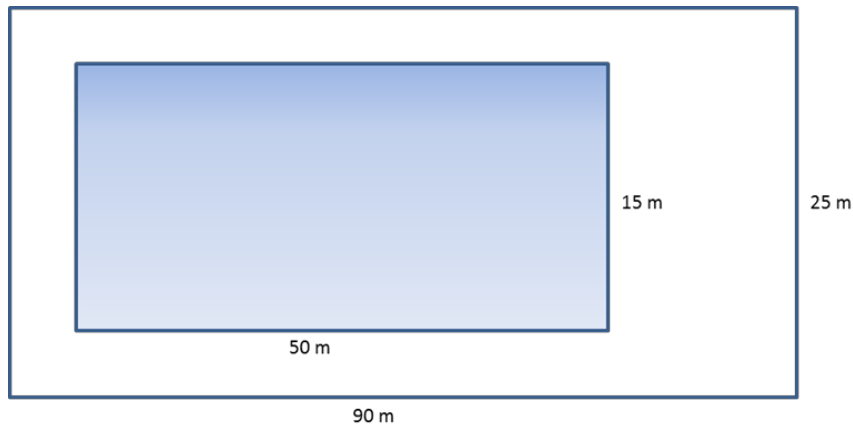


- a. Complete this chart calculating area and perimeter for each square.

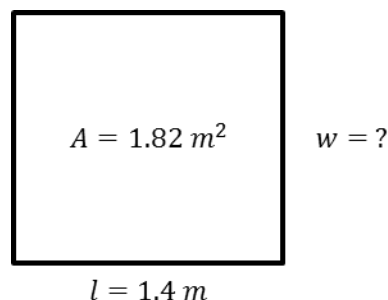
Side Length (in feet)	Expression Showing the Area	Area (in square feet)	Expression Showing the Perimeter	Perimeter (in feet)
1	1×1	1	1×4	4
2				
3				
4				
5				
6				
7				
8				
9				
10				
n				

- b. In a square, which numerical value is greater, the area or the perimeter?
 c. When is the numerical value of a square's area (in square units) equal to its perimeter (in units)?
 d. Why is this true?

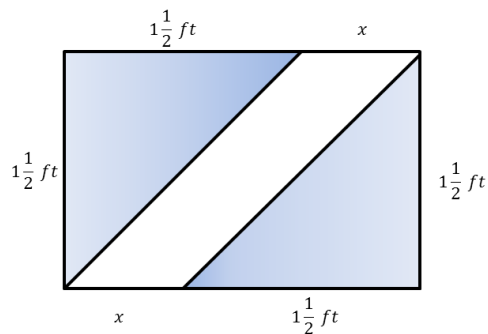
2. This drawing shows a school pool. The walkway around the pool needs special nonskid strips installed but only at the edge of the pool and the outer edges of the walkway.



- a. Find the length of nonskid strips that is needed for the job.
- b. The nonskid strips are sold only in rolls of 50 m. How many rolls need to be purchased for the job?
3. A homeowner called in a painter to paint the walls and ceiling of one bedroom. His bedroom is 18 ft. long, 12 ft. wide, and 8 ft. high. The room has two doors, each 3 ft. by 7 ft., and three windows each 3 ft. by 5 ft. The doors and windows will not be painted. A gallon of paint can cover 300 ft^2 . A hired painter claims he needs a minimum of 4 gallons. Show that his estimate is too high.
4. Theresa won a gardening contest and was awarded a roll of deer-proof fencing. The fencing is 36 feet long. She and her husband, John, discuss how to best use the fencing to make a rectangular garden. They agree that they should only use whole numbers of feet for the length and width of the garden.
- a. What are all of the possible dimensions of the garden?
- b. Which plan yields the maximum area for the garden? Which plan yields the minimum area?
5. Write and then solve the equation to find the missing value below.



6. Challenge: This is a drawing of the flag of the Republic of the Congo. The area of this flag is $3\frac{3}{4}\text{ft}^2$.



- Using the area formula, tell how you would determine the value of the base. This figure is not drawn to scale.
- Using what you found in part (a), determine the missing value of the base.