Lesson 10: Distance, Perimeter, and Area in the Real World

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 foot.



* 1. Complete this chart calculating area and perimeter for each square.

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| **Side Length****(in feet)** | **Expression Showing the Area** | **Area****(in square feet)** | **Expression Showing the Perimeter** | **Perimeter****(in feet)** |
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* 1. In a square, which numerical value is greater, the area or the perimeter?
	2. When is the numerical value of a square’s area (in square units) equal to its perimeter (in units)?
	3. Why is this true?

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.



* 1. Find the length of nonskid strips that is needed for the job.
	2. The nonskid strips are sold only in rolls of . How many rolls need to be purchased for the job?
1. A homeowner called in a painter to paint the walls and ceiling of one bedroom. His bedroom is long, wide, and high. The room has two doors, each by , and three windows each by. The doors and windows will not be painted. A gallon of paint can cover. A hired painter claims he needs a minimum of gallons. Show that his estimate is too high.
2. Theresa won a gardening contest and was awarded a roll of deer-proof fencing. The fencing is 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.
	1. What are all of the possible dimensions of the garden?
	2. Which plan yields the maximum area for the garden? Which plan yields the minimum area?
3. Write and then solve the equation to find the missing value below.



1. Challenge: This is a drawing of the flag of the Republic of the Congo. The area of this flag is .



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