

NAEP Questions

For each question:

- a. Work through each problem - be sure you can do it!
- b. Reflect on how students may answer this question if they do not get the mathematical ideas in the question.

1. A rectangle is twice as long as it is wide.

(a) If  $x$  represents the width of the rectangle, what represents the length?

Answer: \_\_\_\_\_

(b) What is the area of the rectangle in terms of  $x$  ?

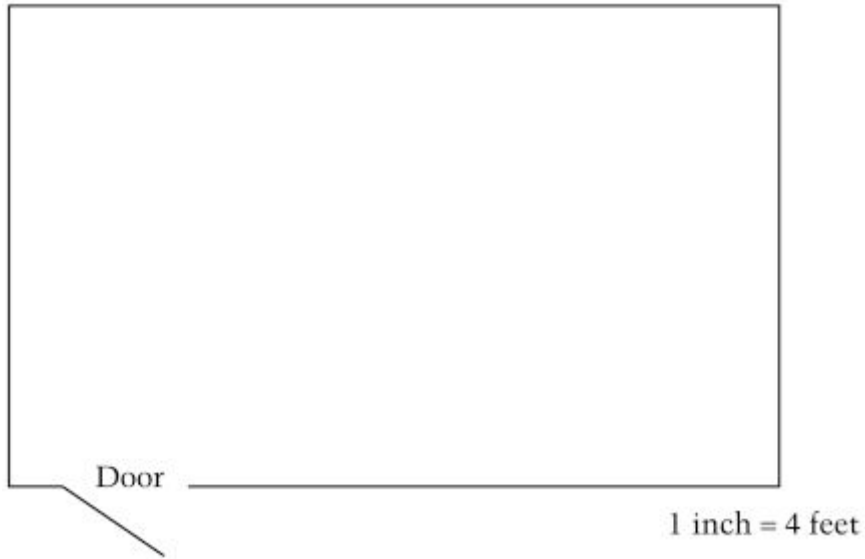
Answer: \_\_\_\_\_

(c) The radius of a sphere is 2 inches. What is the surface area of this sphere, in square inches? Round your answer to the nearest tenth. (Surface area of sphere =  $4\pi r^2$ .)

Answer: \_\_\_\_\_

(d) If the area of the rectangle from part (b) is equal to the surface area of the sphere from part (c), what would be the dimensions of the rectangle? Round your answers to the nearest inch.

Answer: \_\_\_\_\_ inches by \_\_\_\_\_ inches



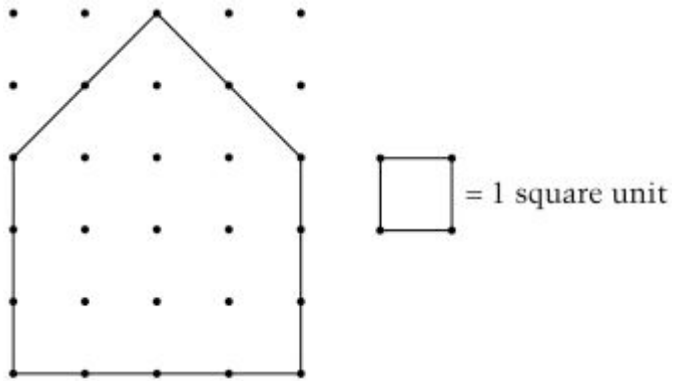
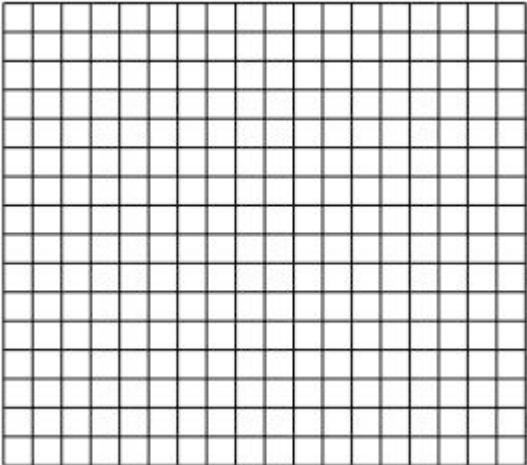
2. The floor of a room shown in the figure above is to be covered with tiles. One box of floor tiles will cover 25 square feet. Use your ruler to determine how many whole boxes of these tiles must be bought to cover the entire floor.

\_\_\_\_\_ boxes of tiles.

Explain your reasoning in the space below.



3. On the grid below, use piece Q to draw a right triangle. The angles of the right triangle should measure the same as the angles in piece Q. The area of the right triangle should be four times the area of piece Q.



- 4. a. What is the area, in square units, enclosed by the pentagon above?
  
  
  
  
  
  
  
  
  
  
- b. On the figure below, draw a different pentagon that has the same area as the one shown. (Be sure the pentagon that you draw does not look like the one shown when it is turned in a different direction.)

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