

**Additional Practice****Investigation 2****Covering and Surrounding**

1. a. Give the dimensions of the rectangle with an area of 100 square units and whole-number side lengths that has
  - i. the largest perimeter
  - ii. the smallest perimeterb. Explain how you found your answers in part (a).
  
2. Jim has designed a rectangle with an area of 100 square feet and a perimeter of 401 feet.
  - a. Is it possible that Jim's rectangle has whole-number side lengths? Explain.
  
  - b. What are the dimensions of Jim's rectangle?
  
3. Claire and Chad want to design a rectangular pen for their new puppy. They want the pen to have an area of 48 square feet. Fencing costs \$0.85 per foot.
  - a. What are the dimensions and the cost of the least expensive pen Claire and Chad could build, assuming the side lengths are whole numbers? Explain.
  
  - b. What are the dimensions and the cost of the most expensive pen Claire and Chad could build, assuming the side lengths are whole numbers? Explain.
  
  - c. Give the dimensions and the cost of a rectangular pen with whole-number side lengths and a cost between the least and most expensive pens you found in parts (a) and (b).
  
  - d. Of the three pens you found, which one would you suggest that Claire and Chad build? Explain your choice.

**Additional Practice** *(continued)***Investigation 2****Covering and Surrounding**

4. For each of the following, state whether the given perimeter is possible for a rectangle with an area of 42 square units and whole-number side lengths.
- a. 28 units      b. 46 units      c. 34 units      d. 41 units
5. On a sheet of grid paper, draw all the possible rectangles with whole-number side lengths that have a perimeter of 10 units. Explain how you made sure you did not miss any possibilities in making your rectangles.
6. For each of the following, tell whether the given area is possible for a rectangle with a perimeter of 28 units and whole-number side lengths.
- a. 24 sq. units      b. 40 sq. units      c. 42 sq. units      d. 45 sq. units
7. Tracy has 40 feet of material to make the perimeter of a rectangular sandbox for her little brother.
- a. What rectangle with whole-number side lengths would give the sandbox with the greatest area?
- b. What rectangle with whole-number side lengths would give the sandbox with the least area?
- c. Give the dimensions of a rectangle with whole-number side lengths that has an area between the least and greatest areas you found in parts (a) and (b).
- d. Of the three rectangles you found, which one would you recommend that Tracy make? Explain your reasoning.