

# Rectangles and Diagonals

NAME \_\_\_\_\_

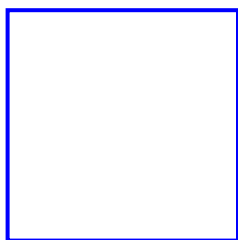
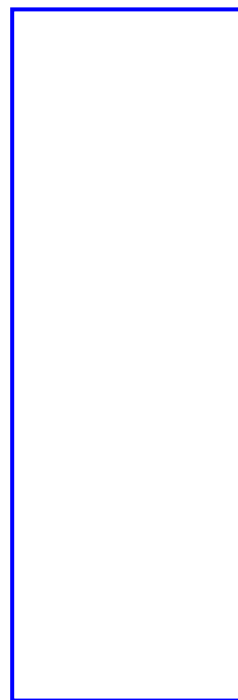
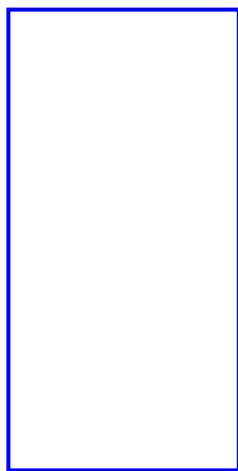
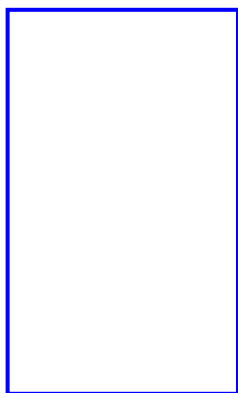
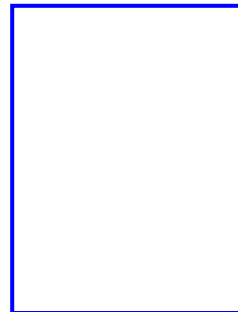
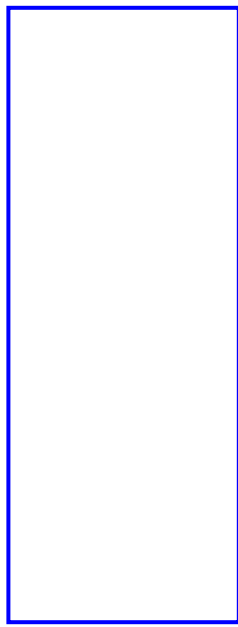
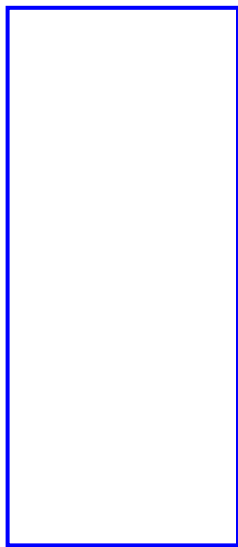
1. If you know the length and width of a square, how could you determine — without measuring — the length of a diagonal? (This is just a prediction... if you don't know the answer, that's okay... just take a guess.)
2. Jaime bikes 5 miles south and 12 miles east from his home. Both paths are straight lines. He knows that there is a diagonal shortcut that runs northwest which he can use to get back home. If he takes this diagonal shortcut, how many miles will he have to travel on the return trip?

*After making your predictions above...*

Measure the rectangles on the following page, as well as some other rectangles. In the table below, record the lengths. Use appropriate labels (such as *cm* or *in.*).

Note: Your teacher will tell you what measurements to record in the fourth column as well as how to label it. Until you receive instructions, leave this column blank.

LENGTH OF RECTANGLE	WIDTH OF RECTANGLE	LENGTH OF DIAGONAL	



3. Now that you have completed the investigation, would you change your answer to Question 1? What changes need to be made to your method to arrive at a more precise answer? What rule can be used to find the length of the diagonal of any rectangle if you know its length and width?
  
4. Did you notice a pattern when recording the lengths of the diagonals? What helped you recognize this pattern?
  
5. When measuring the rectangles, how close were your measurements to the exact measurements of the diagonals? Explain any differences.
  
6. Knowing what you now know, determine a more accurate answer for Question 2.
  
7. What do you know now that would have been helpful when making your predictions for Questions 1 and 2?