Square Sides and Diagonals

NAME _____

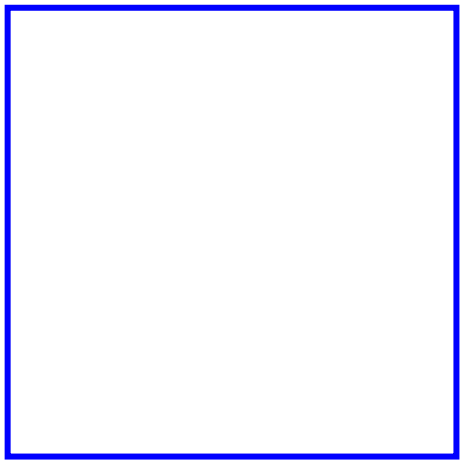
1. If you know the side length of a square, how could you determine — without measuring — the length of a diagonal? (This is just a prediction… if you don't know the answer, that's okay… just take a guess.)

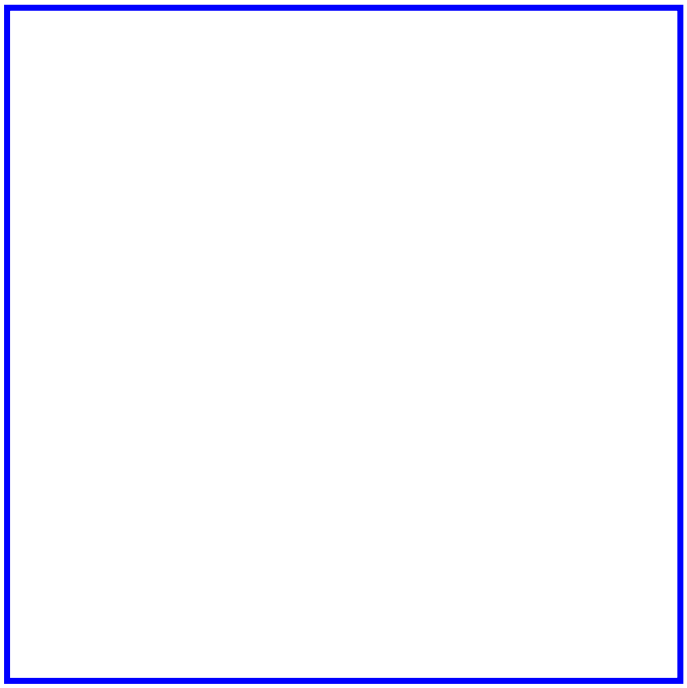
2. On a baseball field, how far do you think it is from home plate to second base?

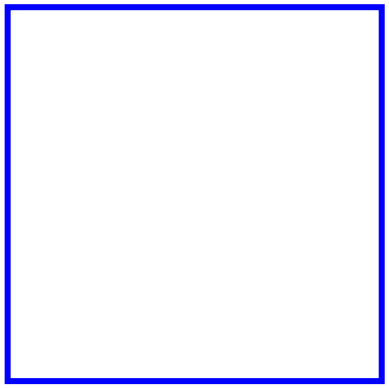
***After** making your predictions above…*

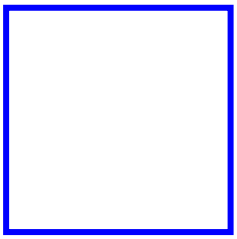
Measure the squares on the following page, as well as some other squares. In the table below, record the side length and the length of the diagonal. Use appropriate labels (such as *cm* or *in.*).

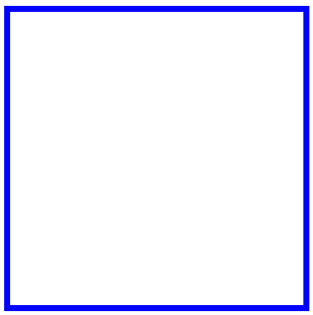
SIDE LENGTH	LENGTH OF DIAGONAL	RATIO OF **DIAGONAL** TO **SIDE LENGTH**

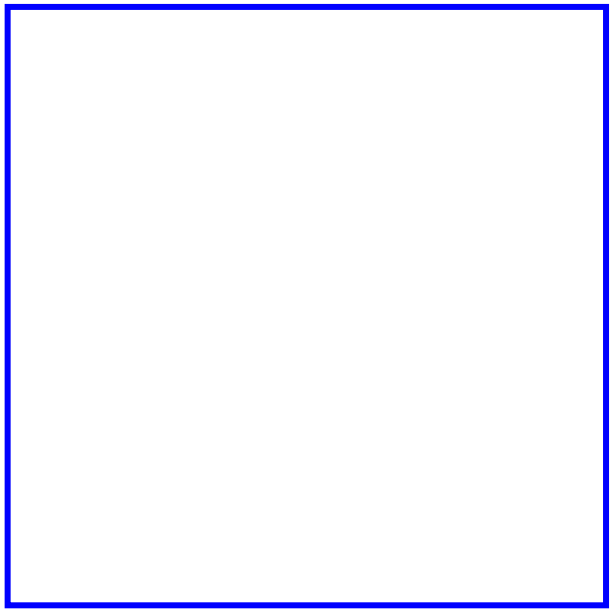


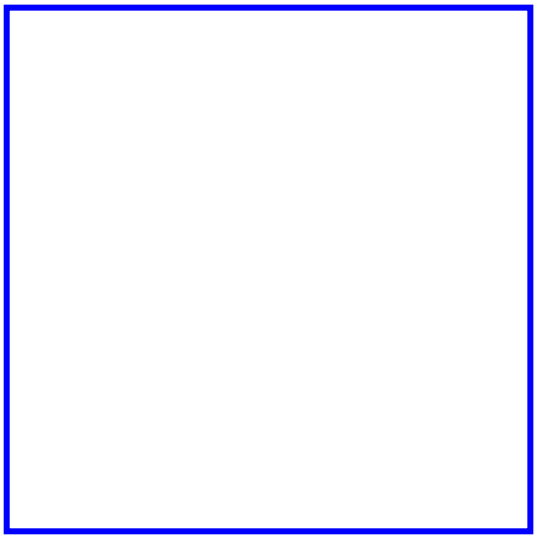












3. Now that you've completed the investigation, would you change your answer to Question 1? Compare your prediction for how to determine the length of the diagonal with the rule you discovered during the investigation. What rule can be used to find the length of the diagonal of any square if you know the side length?

4. Did you notice a pattern when recording the lengths of the diagonals? What helped you recognize this pattern?

5. When measuring the squares, how close were your measurements to the exact length of the diagonals? Explain any differences.

6. The infield in baseball is a square with side length 90 feet. Using this information and the rule you created in Question 3, what is the distance from home plate to second base? How does your answer compare to your prediction in Question 2? Explain why your estimate was too high or too low.

7. What do you know now that would have been helpful when making your predictions for Questions 1 and 2?