LESSON 5.1

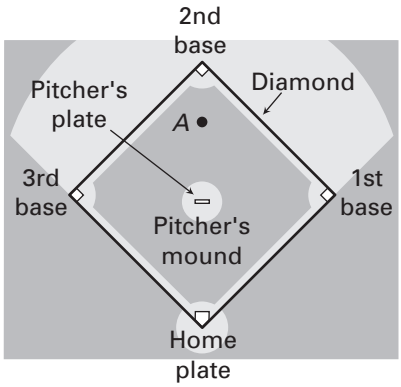
NAME _____ DATE _____

Interdisciplinary Application

For use with pages 264–271

Designing a Baseball Diamond

ENGINEERING Suppose a company is designing the baseball diamond for a new ballpark. A baseball "diamond" refers to the area of a baseball field whose perimeter consists of the distances between each base as well as the pitcher's mound, as shown below.



1. The perimeter of the baseball diamond is 360 feet. What is the distance between each base? What is the area of the baseball diamond?
2. Suppose a worker needs to find the center of the diamond but does not know the distances between each base. Explain how the worker can find the center.
3. What do the line segments in Exercise 2 represent?
4. If the distance from home plate to second base is 127.28 feet, and the distance from home plate to the front of the plate on the pitcher's mound is 60.5 feet, does the pitcher's plate lie on the perpendicular bisector from first base to third base? Explain your reasoning.
5. If you answered "no" to Exercise 4, what is the distance from the back of the pitcher's plate to second base? (Hint: The pitcher's plate is 6 inches wide.)
6. The pitcher's mound has a diameter of approximately 18 feet. What is the distance from home plate to the front of the pitcher's mound?
7. Suppose a baseball player fields the baseball at point *A* (see figure), which lies on the perpendicular bisector from home plate to second base. What theorem shows that the baseball player is at an equal distance from first base and third base?

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