Math 191 Fundamentals of Mathematics II
12.9: The Pythagorean Theorem, Continued
March 12, 2014

Problems Using the Pythagorean Theorem

1. Suppose the quad at BC is a rectangle with two sides that are 150 feet long, and two sides that are 200 feet long. Two students are standing at one corner and have to get to class at the diagonally opposite corner. One student walks in a straight line from corner to corner, cutting across the quad, at 2.5 feet per second. The other student hurries around the perimeter of the quad. How quickly does this student have to walk to arrive at class at the same time as his friend?

2. May Day celebration organizers are planning the dancing around the May Pole. They have ribbons that are 30 feet long and a pole that is 18 feet tall. If the dancers are expected to hold the ribbons at chest-level (about 3 feet off the ground) and the ribbons are tied to the top of the pole, at most how far from the base of the pole will the dancers be?

3. The Great Pyramid of Giza has a square base, and each side is about 200 meters long. The distance from the top of the pyramid to a corner of the base is also about 200 meters. How tall is the pyramid?

4. You want to ship your ski poles, which are 4 feet long, but all you have is a box that is 2 feet by 2 feet by 3 feet. Will your ski poles fit? Assuming that the ski poles have negligible thickness, what is the longest your ski poles could be and still fit in the box?