## **Review Problems**

October 22, 2016

- 1. (Fall 2002, Exam 2, #10) A 13 foot ladder is leaning against a house when its base starts to slide away. When the base is 12 feet from the house, the base is moving at the rate of 5 feet/second. How fast is the top of the ladder sliding down the wall then?
- 2. (Fall 2003, Exam 2, #12) A minibaseball diamond is a square ABCD with side 9 meters. A batter hits the ball at A and runs toward first base B with a speed of 2 m/s. At what rate is his distance from third base D increasing when he is two-thirds of the way to first base?



- 3. (Fall 2005, Exam 2, #13) The minute hand on a watch is 9cm long and the hour hand is 4cm long. How fast, in cm/h, is the distance between the tips of the hands increasing at ten o'clock? (Hint: The law of cosines says that  $c^2 = a^2 + b^2 2ab \cos C$ ).
- 4. (Fall 2007, Exam 2, #11) Two people start from the same point at the same time. One walks north at 2mi/h and the other walks west at 4 mi/h. how fast is the distance between them changing after 30 minutes?
- 5. (Fall 2008, Exam 2, #15) A 5 foot ladder standing on level ground leans against a vertical wall. The bottom of the ladder is pulled away from the wall at 2 ft/sec. How fast is the AREA under the ladder changing when the top of the ladder is 4 feet above the ground?