

Math 255
Homework Set 5
Winter 2008
Due at the beginning of class, Friday, Feb. 15

Note: please staple pages together and use graph paper for all sketches.

The assignment consists of the following problems from the text:

- Section 14.4, Pages 914–916: #6, #16, #22, #34, and #40.
- Section 15.1, Pages 933–937: #6, #16, #32, #53–58, and #60.
- Section 15.2, Pages 944–945, #6, #8, #28, #36, and #42.

The following problem is also part of the assignment:

Suppose you are riding on a roller-coaster in an amusement park, on which your position as a function of time t is given by the parametric equations

$$x(t) = t^2 \quad y(t) = 2t \quad z(t) = 3t - 1.$$

Your friend is waiting on the ground at position $(12, 8, 11)$. If you want to take a picture of your friend during the ride, and because of the restraints you can only point your camera directly forward, at what instant or instants t should you snap the photo? If there is more than one possibility, at which time would you be closest to your friend and hence get the best picture?