

Math Xb Spring 2004
Worksheet: First Semester Review
February 9, 2004

A roadrunner is running along a north-south highway in the American West. At noon it crosses the Arizona-Utah state line. Its position (in miles north or south) relative to the state line t hours after noon is given by the function $s(t) = t^3 - 9t^2 + 15t + 10$, where a positive value of $s(t)$ represents miles north of the state line and a negative value of $s(t)$ represents miles south of the state line.

1. Find a formula for the velocity of the roadrunner at time t .
2. What is the roadrunner's velocity at 3 p.m.?
3. When is the roadrunner not running?
4. When is the roadrunner running north?
5. Find the net displacement of the roadrunner as of 8 p.m.
6. Find the total distance travelled by the roadrunner as of 8 p.m.
7. Draw a diagram that illustrates the path of the roadrunner.