Math-71 Sections 9, 11, 12

Homework #3

Due: 2/19/2019 5:45pm

Reading

- Read sections 7.3 and 7.4.

Problem

A thin board is to be rested up against a large rock such that it touches the rock at exactly one point. Let the ground be the x direction and assume that the origin is at the start of the rock. The surface of the rock follows the function:

$$s(x) = \sqrt{x}$$

where $s(x)$ is the height of the surface of the rock (in feet) at position x (also in feet).

1. Use the definition of the derivative (i.e., the difference quotient from Section 7.3) to determine $s'(t)$.
2. Assuming that the board intersects with the rock surface at $x = 4$, determine where one end of the board touches the ground.