

Reading Outline, §4.6

Vocabulary/Definitions

- What interpretation of the derivative do we use in this section?
- How can we sidestep the problem of only knowing a rate at an instant? What derivative short cut then becomes key in our calculation?

Understand

1. Suppose that S and x are both functions of t . If $S = 2x^2 + \frac{28}{x}$, find $\frac{dS}{dt}$.
2. Suppose a drawbridge that is 5 meters long is raised at a constant angular rate of 0.1 radians/second. When it is half way up ($\theta = \frac{\pi}{4}$), how fast is the x coordinate of the end of the drawbridge changing?