

Homework 12

due Dec 9, 2014

In addition to

5.1. 2, 6, 10, 14, 18, 22, 26, 30, 37, 40, 44, 46, 50, 54, 58, 62, 66, 73, 76, 77, 79

5.2. 2, 4, 6, 12, 14, 17, 18, 24, 26

5.3. 4, 8, 12, 14, 18, 40, 44, 48, 52, 54, 58, 60, 64, 74, 78, 79, 80, 86, 89, 90, 91, 92

For 5.3.79, also answer: What is the particle's initial velocity? What is its acceleration?

5.4. 4, 6, 8, 13, 14, 16, 22, 23, 25, 26.

complete the following problems.

1. If $h'(t)$ is the rate of growth of a child in inches per year, what does the integral

$$\int_0^{15} h'(t) dt$$

represent?

2. If $V'(t)$ is the rate at which water fills a storage tank at time t , measured in hours, what does the integral

$$\int_0^2 V'(t) dt$$

represent? If water begins draining from the tank after 4 hours, what does

$$\int_4^5 V'(t) dt$$

represent?

3. Water is drained from the bottom of a storage tank at a rate

$$r(t) = 100 - 2t$$

liters per minute, where $0 \leq t \leq 50$. How much water flows from the tank during the first half hour?

NOTE: Section 5.4 will only be covered on Monday/Tuesday and therefore, problems for 5.4 are optional for this homework. Material from 5.4 will not be on Quiz #12 but is fair game for the final.