

**Written Homework Problems §5.4**

9 problems for 18 points

§5.4 #207,209,211,223,227,231,241

**Problem A:** Suppose that a volcano is eruption and readings of the rate  $r(t)$  at which solid materials are spewed in the atmosphere are given in the table. The time  $t$  is measured in seconds and the units for  $r(t)$  are tonnes (metric tons) per second.

$t$	0	1	2	3	4	5	6
$r(t)$	2	10	12	20	25	35	60

Give upper and lower estimates for the total quantity of erupted material after 6 seconds.

**Problem B:** The marginal cost of manufacturing  $x$  yards of a decorative fabric is  $C'(x) = 3 - 0.02x + 0.00006x^2$  where  $C'$  is measured in dollars per yard. Find the net increase in cost if the production level is raised from 1000 yards to 2000 yards.