

6. [10 points] The table below gives the expected growth rate,  $g(t)$ , in ounces per week, of the weight of a baby in its first 54 weeks of life (which is slightly more than a year).<sup>1</sup> Assume for this problem that  $g(t)$  is a decreasing function.

week $t$	0	9	18	27	36	45	54
growth rate $g(t)$	6	6	4.5	3	3	3	2

- a. [6 points] Using six subdivisions, find an overestimate and underestimate for the total weight gained by a baby over its first 54 weeks of life.

- b. [4 points] How frequently over the 54 week period would you need the data for  $g(t)$  to be measured to find overestimates and underestimates for the total weight gain over this time period that differ by 0.5 lb (8 oz)?

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<sup>1</sup>Riordan J. *Breastfeeding and Human Lactation*, 3rd ed. Boston: Jones and Bartlett, 2005, p.103, 512-513.