1. [12 points] Given below is a table of values for an **even** function $g(x)$. Assume the function $g(x)$ and its derivative $g'(x)$ are defined and continuous on $(-\infty, \infty)$.

x	-2	0	2	4	6	8	10	12
$g(x)$	2	0	2	5	8	3	2	3

Assume that between consecutive values of x given in the table above, $g(x)$ is either **always increasing** or **always decreasing**.

a. [2 points] Find $\displaystyle\int_2^4 \big(2g'(x) - 3x\big)\,dx$.

Answer: _____

b. [3 points] Find the average of value of $g(x)$ on the interval $[-5, 5]$ given that $\displaystyle\int_0^5 4g(x)\,dx = 60$.

Answer: _____

c. [2 points] Find a number M that makes the following statement a correct conclusion of the Mean Value Theorem: *There is a number c between 6 and 8 such that $g'(c) = M$.*

Answer: $M =$ _____

d. [2 points] Use a right-hand Riemann Sum with 3 equal subdivisions to estimate $\displaystyle\int_0^6 g(x)\,dx$.

e. [1 point] Is the estimate in part **d**. an overestimate or an underestimate? Circle your answer below, or circle NEI if there is not enough information to tell.

UNDERESTIMATE OVERESTIMATE NEI

f. [2 points] How many equal subdivisions of $[0, 6]$ are needed so that the difference between the left-hand and right-hand Riemann sum approximations of $\displaystyle\int_0^6 g(x)\,dx$ is exactly 1?

Answer: $n =$ _____