HWK 6.2 Tables ALL Riemann Sums from a table Name _____

1. An experiment was performed in which oxygen was produced at a continuous rate. The rate (L/min) at which oxygen was produced was measured each minute and the results tabulated. Use the Right sum to estimate the total amount of oxygen produced in 6 minutes. Use Right Sums. Is this an over or underestimate? Explain.

minutes	0	1	2	3	4	5	6
Oxygen	0	1.4	1.8	2.2	3.0	3.2	3.6

Time spent running (min)	0	15	30	45	60	75	90
Speed (mph)	12	11	10	9	8	7	0

2. Phineas decides to run a marathon. Phineas' friend Ferb rides behind him on a bicycle and clocks his pace every 15 minutes. Phineas starts out strong, but after an hour and a half he is so exhausted that he must stop. The data Ferb collected is summarized below. If Phineas' speed is always decreasing, estimate the distance that Phineas ran in **a)** the first half hour and **b)** the entire race. Use Right Sums. Are these an over or underestimate? Explain.

a)

b)

3. Gasoline is being pumped into a car. The rate that the gas is being pumped is given in the table below at selected times (seconds). Use a Midpoint approximation to estimate the total gallons of gasoline pumped in the car over the 24 seconds.

Time (sec)	0	4	8	12	16	20	24
g ' (t) gal/sec	0	.34	.42	.56	.45	.34	.22

4. The rate that people are entering a local office is given below in people/hour. Use a Trapezoidal approximation to estimate the total number of people entering the office over the interval $0 \leq t \leq 7$.

Time (hours)	0	1	3	4	7
r ' (t) ppl/hr	12	7	3	5	8

Time (months)	0	1	3	4	6	7	9
Rate pollutants are escaping (tons/month)	5	7	8	10	13	16	20

5. Coal gas is produced at a gas house. Pollutants in the air are removed by scrubbers, which become less and less efficient as time goes on. Measurements are made at the start of each month (although some months were neglected) showing the rate at which pollutants in the gas are as follows. Use a left sum to estimate the total number of tons of coal removed over 9 months. Is this an over or underestimate? Explain.