

Name _____

1. Due to a terrible storm, the water in a river is rising. The people in a nearby town are worried that flooding will occur. They have sandbags along both sides of the river which will stop the flooding as long as the total rise in the water-level is less than 15 inches. The rate at which the water is rising is decreasing until the storm finally stops 24 hours later, and is recorded every 6 hours in the table below.

# hours	0	6	12	18	24
# inches per hour	1.5	0.6	0.3	0.2	0

- (a) (5 points) By computing a left Riemann sum, a right Riemann sum, and then averaging these values, give three different estimates for the number of inches that the water-level of the river rises during this 24-hour period.

- (b) (1 point) Circle the statement which is most accurate for this 24-hour period.

Note: You will not get credit for this problem unless your estimates in part (a) are correct.

- i. The town definitely floods.
- ii. The town probably floods, but there is a slight chance that it does not flood.
- iii. The town definitely does not flood.
- iv. The town probably does not flood, but there is a slight chance that it does flood.

2. (4 points) Estimate the value of $\int_0^4 \frac{10}{2^t} dt$

- using a left Riemann sum with $\Delta t = 2$.

- using a right Riemann sum with $\Delta t = 2$.

- using the average of your two Riemann sums.

- using the built-in integrator on your calculator.