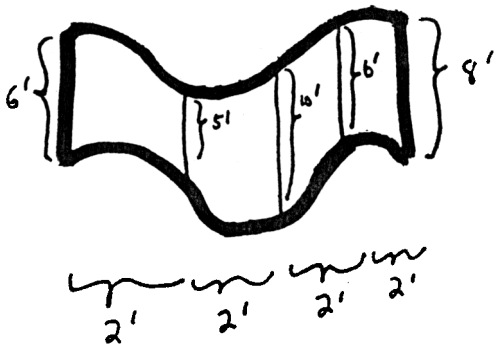


3. Use Simpson's rule to estimate the area of the following shape. All measurements are in feet.



$$\text{Area} \approx \frac{h}{3} [f(x_0) + 4f(x_1) + 2f(x_2) + 4f(x_3) + f(x_4)]$$

$$\text{Area} \approx \frac{2}{3} [6 + 4 \cdot 5 + 2 \cdot 10 + 4 \cdot 6 + 8]$$

4. Does the series $\sum_{k=1}^{\infty} \left(1 - \frac{1}{k}\right)^k$ converge? Justify your answer. Find the sum of the series if you can

$$\lim_{k \rightarrow \infty} \left(1 - \frac{1}{k}\right)^k = e^{-1} \neq 0$$

The k^{th} term does not go to zero

So the n^{th} term test tells us that the series diverges