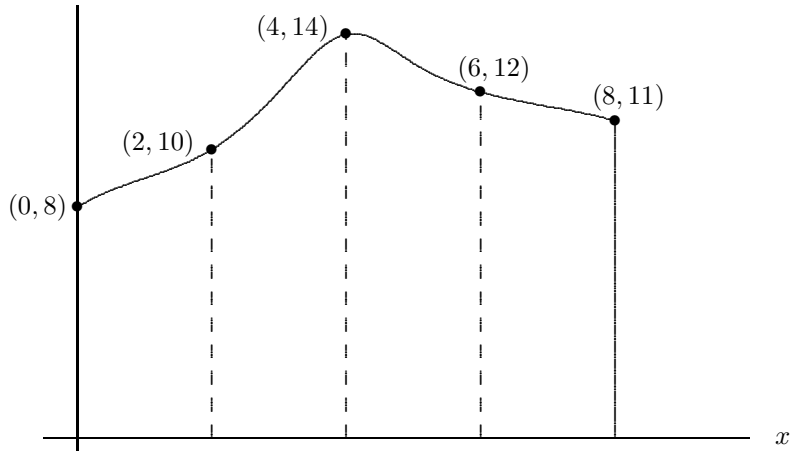


9) Find the average value of a stock between January, 1980 and January, 1990 if the price of the stock can be modeled by: $P(x) = 40e^{0.3x}$ where x is the number of years since 1980. Show your work and/or calculator entries.

10) The population of a certain region in South Carolina has been *expanding at a rate of* $p(x) = -2915x + 19400$ people each year x years since 1990. How many people were in the region in 1996, if the population in 1990 was 227,120 ?

MATH 115
Test 4

1–3 Use the figure to complete the following.



- 1) Estimate the area between the curve and the x -axis using *right* rectangles. Show your work.
- 2) Estimate the area between the curve and the x -axis using *left* rectangles. Show your work.
- 3) Using your answers to the first two questions, give an estimate of the actual area between the curve and the x -axis. Do you think that your answer is an accurate one? Why or why not?
- 4) Use the *Fundamental Theorem of Calculus* to evaluate the following. Show all your steps carefully.
$$\int_1^3 \left(e^{-4x} + \frac{3}{x} - 5 \right) dx$$
- 5–7 Consider the function $y = x(x + 1)(x - 3)$.
 - 5) Evaluate the integral: $\int_{-1}^3 x(x + 1)(x - 3) dx$
 - 6) Find the area between the function and the x -axis.
 - 7) Discuss the answers that you got in questions 5 and 6 as far as the definite integral and area.
- 8) Find the area between the curves: $y = 0.2xe^{-0.2x}$ and $y = \frac{x}{5e}$. Show your work and/or calculator entries.