Approximating definite integrals: **Section-7.5**

1. The characteristic of $f(x)$ is given in the first column. For each rule, determine if the rule will produce an overestimate or underestimate of a definite integral.

$f(x)$	Left hand	Right Hand	Mid point	Trapezoid
Increasing and Concave up				
Decreasing and Concave up				
Increasing and Concave down				
Decreasing and Concave down				

2. Estimate the value of $\int_0^4 e^{x^2} dx$ with $n = 4$, for each of the given rules. Complete the table with exact values (do not use calculator program). Illustrate each rule in the space provided below.
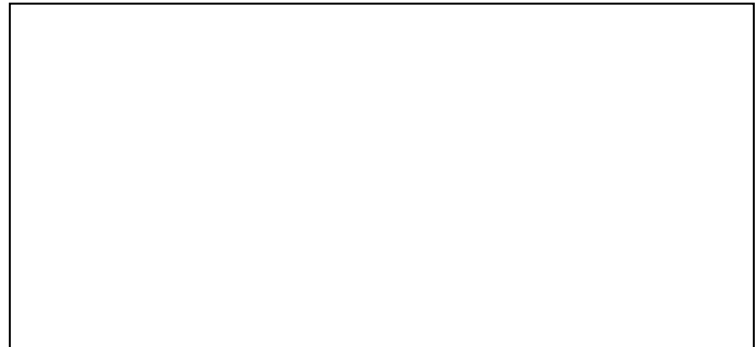
a. Left Hand Rule

x					
e^{x^2}					

$Left(4) =$

b. Right Hand Rule

x					
e^{x^2}					

$Right(4) =$

c. Midpoint Rule

x					
e^{x^2}					

$Mid(4) =$

d. Trapezoid Rule

x					
e^{x^2}					

$Trap(4) =$