Warm-up Problems

1. Let \( y = x^2 \).

   Compute left and right hand sums for the area between \( x = 1 \) and \( x = 4 \).
   
   (a) \( L_2 = \)  
   (b) \( R_2 = \)  
   (c) \( T_2 = \)  
   (d) \( M_2 = \)  
   (e) \( L_3 = \)  
   (f) \( R_3 = \)  
   (g) \( T_3 = \)  
   (h) \( M_3 = \)  
   (i) \( L_6 = \)  
   (j) \( R_6 = \)  
   (k) \( T_6 = \)  
   (l) \( M_6 = \)  
   (m) \( L_{100} = \)  
   (n) \( R_{100} = \)  
   (o) \( T_{100} = \)  
   (p) \( M_{100} = \)

Lecture Problems

2. Compute \( \int_1^4 x^2 \, dx \)
   
   (a) \( \Delta x = \)  
   (b) \( x_i = \)  
   (c) Continue with this and simplify (using what you found above)
   
   \[
   \text{RHS} = \sum_{i=1}^{n} f(x_i) \Delta x =
   \]
   
   (d) Take the limit as \( n \to \infty \)

   \[
   \lim_{n \to \infty} \text{RHS} = \lim_{n \to \infty} \sum_{i=1}^{n} f(x_i) \Delta x = \lim_{n \to \infty} \text{(What you got in last problem)}
   \]