**Math 131 - April 18, 2016**

# 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 $n \to \infty$

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