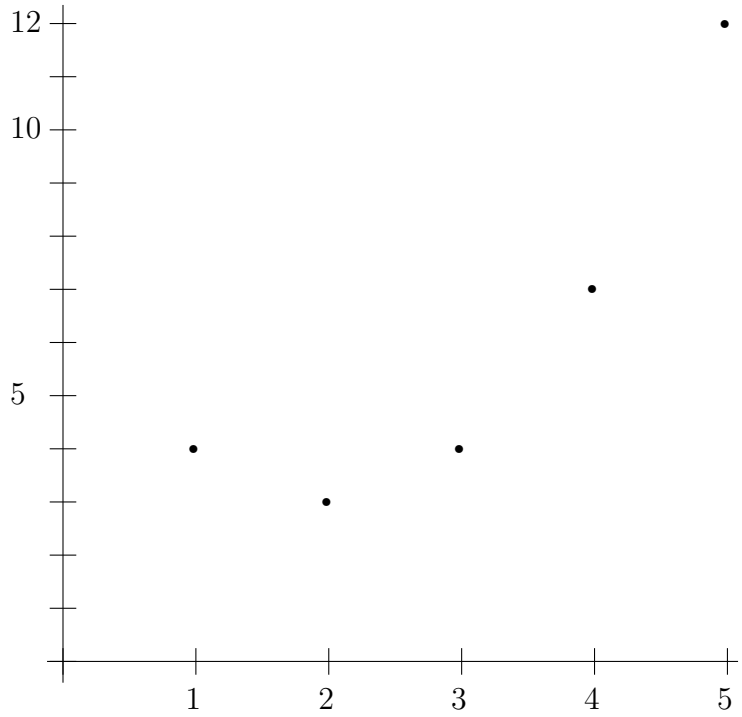
M145 Worksheet # 3 Thurs, Jan 19, 2006

(1a) Below is the graph of a function $y = f(x)$, with the values of $f(x)$ marked at the points $x = 1, 2, 3, 4, 5$.. Give lower (L) and upper (U) bounds for the area under the curve from $x = 1$ to $x = 5$.

For (L) use 4 rectangles, with $\Delta x = 1$ and min value of $f(x)$ to calculate the height.

For (U) use 4 rectangles also with $\Delta x = 1$) and max value of $f(x)$ to calculate the height.



(1b) Use the trapezoid rule (with $\Delta x = 1$) to find a good estimate for the area.

(1c) You are told that the function in **(1a)** is $y = x^2 - 4x + 7$. Use the Fundamental Theorem to calculate (exactly) the area under the curve from $x = 1$ to $x = 5$.