Math 202 **Practice with Sums** **8 October 2002**

Instructions: For each problem, write out the first few terms and the last term of the sum, then use a calculator to find a decimal approximation of the sum's value.

Example: $\displaystyle\sum_{k=1}^{15} \frac{1}{2k}$

Solution: We have

$$\sum_{k=1}^{15} \frac{1}{2k} \;=\; \frac{1}{2} + \frac{1}{4} + \frac{1}{6} + \cdots + \frac{1}{30}.$$

The calculator says the sum is approximately 1.6591.

1. $\displaystyle\sum_{i=1}^{40} \frac{1}{2i-1}$
2. $\displaystyle\sum_{n=0}^{10} \frac{n^2}{2^n}$
3. $\displaystyle\sum_{k=1}^{100} \frac{(-1)^{k+1}}{k}$
4. $\displaystyle\sum_{j=0}^{20} \frac{j^2 \sin\left(\frac{\pi j}{2}\right)}{3^j}$
5. $\displaystyle\sum_{i=1}^{100} \frac{1600}{40000 + (2i-1)^2}$