

Supplementary Infinite Series Problems
MATH 212 - Dr. Bogacki

1. (a) $\sum_{n=1}^{\infty} n^{-\sqrt{0.5}}$
(b) $\sum_{n=1}^{\infty} \frac{1}{n^{2.5}}$
2. (a) $\sum_{n=2}^{\infty} \frac{(-1)^n}{n^2}$
(b) $\sum_{n=2}^{\infty} \frac{(-1)^n}{\ln n}$
3. (a) $\sum_{n=1}^{\infty} \frac{(2n)!}{(n!)^2}$
(b) $\sum_{n=1}^{\infty} \frac{(n+3)!}{3!n!3^n}$
4. (a) $\sum_{n=1}^{\infty} \frac{\cos^3 n}{n^2}$
(b) $\sum_{n=1}^{\infty} \frac{2^n}{n+1}$
5. (a) $\sum_{n=2}^{\infty} \frac{1}{\sqrt{n}+1}$
(b) $\sum_{n=2}^{\infty} \frac{1}{3^{n-1}-1}$
6. (a) $\sum_{n=1}^{\infty} \left(\frac{(n+1)^3}{n-2n^2+3n^3} \right)^n$
(b) $\sum_{n=1}^{\infty} \left(\frac{3n^2-n+1}{2n^2+2n+1} \right)^n$
7. (a) $\sum_{n=1}^{\infty} (-1)^n \frac{2}{\sqrt{n}+1}$
(b) $\sum_{n=1}^{\infty} (-1)^n \frac{\arctan(n)}{n^2+1}$
8. (a) $\sum_{n=2}^{\infty} \frac{\pi^{n+1}}{e^{n-1}}$
(b) $\sum_{n=0}^{\infty} \left(\frac{1}{3^n} - \frac{1}{4^n} \right)$