

MATH 141, FALL 2011

Find the intervals of convergence of the following power series:

$$\sum_{n=1}^{\infty} \frac{x^n}{n^p}$$

$$\sum_{n=1}^{\infty} \frac{3^n + (-2)^n}{n} (x+1)^n$$

$$\sum_{n=1}^{\infty} \frac{(n!)^2}{(2n)!} x^n$$

$$\sum_{n=1}^{\infty} \alpha^{n^2} x^n, \quad 0 < \alpha < 1$$

$$\sum_{n=1}^{\infty} \left(1 + \frac{1}{n}\right)^{n^2} x^n$$

$$\sum_{n=1}^{\infty} \frac{n!}{\alpha^{n^2}} x^n, \quad \alpha > 1$$

$$\sum_{n=2}^{\infty} \frac{x^n}{\alpha \sqrt{n}}, \quad \alpha > 0$$