Department of Mathematics, Bennett University
Engineering Calculus (EMAT101L)
Tutorial Sheet 6

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1. Find radius of convergence of following power series:

   (a) $\sum_{n=1}^{\infty} \frac{1}{n^n} x^n$ **(b)** $\sum_{n=1}^{\infty} \frac{1}{n^n} (x-5)^n$

   (c) $\sum_{n=1}^{\infty} 4^n x^n$ **(d)** $\sum_{n=1}^{\infty} \frac{1}{4^n} x^n$

   (e) $\sum_{n=1}^{\infty} \frac{1}{3^n+1} x^n$ **(f)** $\sum_{n=1}^{\infty} \frac{1}{n!} (x-3)^n$

   (g) $\sum_{n=1}^{\infty} \frac{1}{n^p} x^n$ **(h)** $\sum_{n=1}^{\infty} \frac{n!}{n^n} (x+3)^n$

2. Find Taylor series of following functions about given points.

   (a) $\sin(x)$ about $c = \frac{\pi}{4}$

   (b) $x^3 - 7x + 11$ about $c = -1$

   (c) $\frac{1}{x}$ about $c = 1$

   (d) $\frac{x}{x^4+9}$ about $c = 0$