Dr. Z.'s Intro to Complex Variables Homework assignment 9

1. Find the center of convergence and radius of convergence of the following power series

a. $\sum_{k=0}^{\infty} k^3 (z-1)^k$;

b. $\sum_{k=0}^{\infty} \frac{k!^3}{(3k)!}(z-5)^k$;

c. $\sum_{k=0}^{\infty} k^3 (z-1)^k$;

d. $\sum_{k=0}^{\infty} 7^{(-1)^k} z^k$;

2. Find the power series about the origin for the given functions

a. e^{-2z^2}

b. $\frac{z^3}{1-z^5}$, $|z| < 1$

c. $\cosh z^3$

d. $\cos^2 z$