Solutions to Week in Review 10

1. $\sum_{n=0}^{\infty} \frac{(-1)^n (x-3)^n}{3^{n+1}}$, $R = 3$
2. $\sum_{n=0}^{\infty} \frac{x^n}{n!}$, $R = \infty$
3. $\sum_{n=0}^{\infty} \frac{(-1)^n x^{2n+1}}{(2n+1)!}$, $R = \infty$
4. a.) $\sum_{n=0}^{\infty} \frac{(-1)^n (x)^{6n}}{(2n)!}$

   b.) $\sum_{n=0}^{\infty} \frac{(-1)^n x^{n+1}}{n!}$

   c.) $\sum_{n=0}^{\infty} \frac{(-1)^n x^{2n+1}}{2^{2n+1}(2n+1)!}$
5. $C + \sum_{n=0}^{\infty} \frac{(-1)^n 2^{2n+1} x^{2n+1}}{(2n+1)(2n+1)!}$
6. Use the second partial sum: $S_2 = \frac{1}{2} - \frac{1}{320}$
7. $T_3 = 1 + \frac{1}{2}(x-1) - \frac{1}{8}(x-1)^2 + \frac{1}{16}(x-1)^3$
8. $T_2 = \ln(2) + \frac{1}{2}(x-2) - \frac{1}{8}(x-2)^2$, $|R_2(x)| < \frac{1}{3}$
9. The maximum error is $\frac{(0.3)^7}{7!}$
10. $d = \sqrt{26}$
11. $(x+1)^2 + (y-2)^2 + (z+5)^2 = 25$
12. $C(3, -2, 5)$, $r = \sqrt{38}$
13. All points on and inside the cylinder $x^2 + y^2 = 4$.