1. Expand each of the following as a power series using the binomial series. State the radius and interval of convergence.   a) $(4-x)^{\frac{1}{2}}$

b) $\dfrac{1}{(1+x)^3}$

2. Use the binomial series to expand $\sqrt[3]{1+x}$ as a power series and use this to estimate $\sqrt[3]{1.02}$.

3. Use the binomial series to expand a Maclaurin series for $\sin^{-1} x$