MAC 1140
LA session

Week 15

1. Evaluate without using a calculator

a) $\begin{pmatrix} 8 \\ 3 \end{pmatrix}$

b) $\begin{pmatrix} 6 \\ 0 \end{pmatrix}$

2. Show that $\begin{pmatrix} n \\ 0 \end{pmatrix} = 1$, $\begin{pmatrix} n \\ n \end{pmatrix} = 1$ and $\begin{pmatrix} n \\ 1 \end{pmatrix} = \begin{pmatrix} n \\ n-1 \end{pmatrix} = n$

3. Use Pascal's triangle to expand

a) $(x+2)^4$
b) $(1-\sqrt{2})^6$

4. Use the Binomial Theorem to expand

a) $(2x-3)^5$

b) $\left(x + \dfrac{1}{x} \right)^5$

5. Find the first 3 terms in the expansion of $(\sqrt{x}+1)^{24}$

6. Find the term containing x^8 in the expansion of $(2x^2 + 1)^{12}$

7. Find the coefficient of x^9 in the expansion of $(2x - 1)^{12}$