

$$(a+b)^0 =$$

$$(a+b)^1 =$$

$$(a+b)^2 =$$

$$(a+b)^3 =$$

$$(a+b)^4 =$$

$$(a+b)^n = a^n + \binom{n}{1}a^{n-1}b^1 + \binom{n}{2}a^{n-2}b^2 + \binom{n}{3}a^{n-3}b^3 + \dots$$

.....

$$\text{where } \binom{n}{r} = {}^nC_r = \frac{n!}{r!(n-r)!}$$

$$(1+2x)^{10}$$

$$a=1 \quad b=2x \quad n=10$$

$$(10-\frac{1}{2}x)^6$$

$$a=10 \quad b=-\frac{1}{2}x \quad n=6$$

$$(x-\frac{1}{x})^5$$

$$a=x \quad b=-\frac{1}{x} \quad n=5$$

- COMPARING COEFFICIENTS

$$1 + \underset{\substack{\uparrow \\ \text{coefficient} \\ \text{of } x}}{8q}x + \underset{\substack{\uparrow \\ \text{coefficient} \\ \text{of } x^2}}{28q^2}x^2$$

- BINOMIAL ESTIMATION

Estimate 0.975^{10} to 4dp

Given

$$\left(1 - \frac{x}{4}\right)^{10} = 1 - 2.5x + 2.8125x^2 - 1.875x^3$$

$$0.975 = 1 - \frac{x}{4}$$

$$x = 0.1$$

Now sub $x=0.1$ into the binomial expansion.