**8A Introduction & Pascal’s Triangle**

1. Find the expansion of (x + 2y)3
2. Find the expansion of (2x - 5)4
3. The coefficient of x2 in the expansion of (2 - cx)3 is 294. Find the value of c.

**8B nCr**

1. Calculate $6!$
2. Calculate $$
3. Calculate $$ and $$, and comment on your answers

**8C nCr with Binomials**



1. Use the binomial theorem to find the expansion of $\left(3-2x\right)^{5}$
2. Find the first 4 terms in the expansion of $\left(1+2x\right)^{10}$
3. Find the first 4 terms in the expansion of $\left(10-\frac{1}{2}x\right)^{6}$

**8D Finding Coefficients in Expressions**

1. Find the coefficient of $x^{4}$ in $\left(2+3x\right)^{10}$
2. Find the coefficient of $x^{3}$ in $\left(2+x\right)\left(3-2x\right)^{7}$
3. If $g\left(x\right)=(1+kx)^{10}$, where $k$ is a constant, and the coefficient of $x^{3}$ is 15, find the value of $k$.
4. Write down the first three terms, in ascending powers of $x$, of the binomial expansion of $(1+qx)^{8}$, where $q$ is a non-zero constant.
5. Given that, in the expansion of $(1+qx)^{8}$, the coefficient of $x$ is $–r $and the coefficient of $x^{2}$ is $7r$, find the values of $q$ and $r$

**8E Using the Binomial Expansion for Approximations**

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1. Find the first four terms of the binomial expansion of $\left(1-\frac{x}{4}\right)^{10}$, in ascending powers of $x$
2. Use your expansion to estimate the value of 0.97510, giving your answer to 4 decimal places