## Using Pascal's Triangle

Without using a calculator:

(a) write out the first seven rows of Pascal's triangle.

(b) Hence find the expansions of:

(i) $(1+x)^5$ (ii) $(1+x)^7$

Using your calculator, find:

(a) ${}_5C_3$ (b) ${}_8C_0$ (c) ${}_{10}C_5$

(d) ${}_6C_1$ (e) ${}_9C_9$ (f) ${}_7C_4$

Using your calculator, find:

(a) The first four terms, in ascending powers of $x$, in the expansion of $(1+x)^{10}$

(b) The first four terms, in ascending powers of $x$, in the expansion of $(1+x)^{8}$

(c) The first three terms, in ascending powers of $x$, in the expansion of $(1+x)^{13}$

(d) The first three terms, in ascending powers of $x$, in the expansion of $(1+x)^{16}$

Write down the combination you would use, and its value, for:

(a) The coefficient of the $x^4$ term in the expansion of $(1+x)^9$

(b) The coefficient of the $x^2$ term in the expansion of $(1+x)^6$

(c) The coefficient of the $x$ term in the expansion of $(1+x)^{12}$

(d) The coefficient of the $x^3$ term in the expansion of $(1+x)^{20}$


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