# PASCAL'S TRIANGLE - BINOMIAL THEOREM

**1** Use Pascal's triangle to find the expansion of each of the following.

**(a)** $(1+x)^6$ **(b)** $(1+x)^8$ **(c)** $(1+b)^7$ **(d)** $(1+2x)^3$

**4** The coefficient of $x^4$ in the expansion of $\left(x-\sqrt{2}\right)^6$ is:

**A** $-30$ **B** $30$ **C** $-60$ **D** $60$

**5** Find the fourth term in the expansion of: **(a)** $(1+x)^5$ **(b)** $(1-2a)^7$ **(c)** $\left(1+\frac{3x}{4}\right)^6$

**7** Use the expansion of $\left(1-\frac{1}{x}\right)^n$ to find the value of each expression correct to four decimal places.

**(a)** $\left(\frac{9}{10}\right)^6$ **(b)** $\left(\frac{19}{20}\right)^5$ **(c)** $\left(\frac{99}{100}\right)^4$

**2.** Write the simplified expansion for each of the following:

$(2+\sqrt{2})^4$

$(\sqrt{5}+\sqrt{3})^5$

**4** The coefficient of $x^5$ in the expansion of $(2x+5)^8$ is:

**A** 32 000 **B** 4000 **C** 224 000 **D** 1792

**5.** Find the term independent of $x$ in the expansions below:

$\left(x+\frac{1}{x}\right)^6$ $\left(x+\frac{1}{x^2}\right)^6$

**5** The fourth term in the expansion of $\left(\frac{a}{b}-\frac{b}{a}\right)^6$ is:

**A** $-20$ **B** $20$ **C** $\frac{15a^2}{b^2}$ **D** $-\frac{15b^2}{a^2}$

6. Write and simplify the fourth term of $\left(\frac{m}{2}+3n\right)^8$

**8** Write and simplify the $(k+2)$-th term of $(a+b)^{2n}$.