

Further Maths: Binomial Expansion

1 Solve the following using binomial expansion:

a. $(a + b)^4$

b. $(x + 1)^4$

c. $(x - 3)^4$

d. $(x + \sqrt{3})^4$

e. $(3x + \frac{2}{3})^4$

f. $(5x + \frac{2}{\sqrt{3}})^4$

2 Solve the following using binomial expansion:

a. $(a + b)^5$

b. $(x - 5)^5$

c. $(5x - 6)^5$

d. $(2x + \sqrt{5})^5$

e. $(7x + \frac{1}{2})^5$

f. $(8x + \frac{2}{\sqrt{5}})^5$

3 Find the co-efficient of the x^3 term in each of the following expansions.

a. $(x + 1)^4$

b. $(x - 3)^4$

c. $(x + \sqrt{3})^4$

d. $(3x + \frac{2}{3})^4$

e. $(5x + \frac{2}{\sqrt{3}})^4$

f. $(x - 5)^5$

g. $(5x - 6)^5$

h. $(2x + \sqrt{5})^5$

i. $(7x + \frac{1}{2})^5$

j. $(8x + \frac{2}{\sqrt{5}})^5$

k. $(5x + \frac{\sqrt{5}}{2})^7$

l. $(3x + \frac{5}{6})^8$

m. $(\frac{4x}{5} + \frac{7}{\sqrt{3}})^{12}$