

Binomial Expansion

Expand and simplify

(a) $(x + 1)^5$

(b) $(x + 2)^3$

(c) $(x - 1)^3$

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

(e) $(2x + y)^4$

(f) $(2x - 3y)^5$

(a) $x^5 + 5x^4 + 10x^3 + 10x^2 + 5x + 1$

(b) $x^3 + 6x^2 + 12x + 8$

(c) $x^3 - 3x^2 + 3x - 1$

(d) $a^4 + 4a^3b + 6a^2b^2 + 4ab^3 + b^4$

(e) $16x^4 + 32x^3y + 24x^2y^2 + 8xy^3 + y^4$

(f) $32x^5 - 240x^4y + 720x^3y^2 - 1080x^2y^3 + 810xy^4 - 243y^5$

(a) Find the coefficient of the x^2 term in the expansion of $(2x - 1)^4$

(b) Find the coefficient of the x term in the expansion of $(3 - x)^3$

(a) 12

(b) 27

The first three numbers in the tenth row of Pascal's triangle are 1, 10, and 45.

(a) Write down the first three numbers in the eleventh row of Pascal's triangle.

(b) Hence write down the first three terms, in ascending powers of x , of $(1 + x)^{11}$

(a) 1, 11 and 55

(b) $1 + 11x + 55x^2$

(a) Expand and simplify $(x^2 + 2)^4$

(b) Work out the coefficient of the x^4 term in the expansion of $(x + \frac{1}{x})^5$

(a) $x^8 + 8x^6 + 24x^4 + 32x^2 + 16$

(b) 10

The coefficient of the x^2 term in the expansion of $(a + 2x)^6$ is 960. Find the possible values of a .

$60a^4 = 960$

$a^4 = 16$

$a = \pm 2$