

SATPREP

Assignment : Binomial Theorem

- Find the first three terms, in descending powers of x , in the expansion of $\left(2x - \frac{2}{x}\right)^4$.
- Find the first three terms, in ascending powers of x , in the expansion $(2 + kx)^6$.
- Find the first three terms, in ascending powers of x , in the expansion $(1 - 2x)^6$.
 - Hence find the coefficients of x and x^2 in the expansion of $(4 - x)(2 - 4x)^6$.
- Find the first three terms, in descending powers of x , in the expansion $\left(4x - \frac{k}{x^2}\right)^6$.
 - Given that the value of the term in the expansion which is independent of x is 240, find possible values of k .
- Find the first three terms, in descending powers of x , in the expansion of $\left(x^2 - \frac{1}{x}\right)^6$.
 - Find the coefficient of x^3 in the expansion of $\left(x^2 - \frac{1}{x}\right)^6$.

Answer

- $16x^4 - 64x^2 + 96$
- $64 + 192kx + 240k^2x^2$
- $1 - 12x + 60x^2$
 - $-3136, 16128$
- $4096x^6 - 6144kx^3 + 3840k^2$
 - $\pm \frac{1}{4}$
- $x^{12} - 6x^9 + 15x^6$
 - -20