
Show all your details work on separate sheet(s) (8½ x 11):

- Find the coefficient of x^5 in the expansion of $(3x - 2)^8$.
- Find the coefficient of a^3b^4 in the expansion of $(5a + b)^7$.
- Find the coefficient of a^5b^7 in the expansion of $(a + b)^{12}$.
- Determine the constant term in the expansion of $\left(x - \frac{2}{x^2}\right)^9$.
- Use the binomial theorem to complete this expansion. $(3x + 2y)^4 = 81x^4 + 216x^3y + \dots$
- Consider the binomial expansion $(1 + x)^4 = 1 + \binom{4}{1}x + \binom{4}{2}x^2 + \binom{4}{3}x^3 + x^4$.
 - By substituting $x = 1$ into both sides, or otherwise, evaluate $\binom{4}{1} + \binom{4}{2} + \binom{4}{3}$
 - Evaluate $\binom{9}{1} + \binom{9}{2} + \binom{9}{3} + \binom{9}{4} + \binom{9}{5} + \binom{9}{6} + \binom{9}{7} + \binom{9}{8}$
- Consider the expansion of $\left(3x^2 - \frac{1}{x}\right)^9$.
 - How many terms are there in this expansion?
 - Find the constant term in this expansion.
- Find the coefficient of x^3 in the expansion of $(2 - x)^5$.
- Find the term containing x^{10} in the expansion of $(5 + 2x^2)^7$.
- Complete the following expansion. $(2+ax)^4 = 16+32ax+\dots$

**All MATH Course structured & Tutoring
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