



Core Mathematics C12(GCE)

Practice Question 16

Standard A[★]

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**CRITICAL THINKING IS THE KEY TO SOLVE REAL WORLD PROBLEMS.
CHILDREN MUST BE TAUGHT HOW TO THINK, NOT WHAT TO THINK.
A GREAT TEACHER WILL BE CREATING STUDENTS TO DO NEW THINGS
THROUGH CRITICAL THINKING, NOT SIMPLY REPEATING WHAT OTHER
GENERATIONS HAVE DONE BEFORE. WE DO NOT NEED ANOTHER
ALBERT EINSTEIN OR ISAAC NEWTON.... WE NEED A PERSON BETTER
THAN THEM.**

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Binomial distribution

Question:

(a) Given that,

$$\binom{14}{r} = 1001, \text{ find the values of } r$$

(2 marks)

(b) Without expanding find the term independent of x in the binomial expansion

$$\left(\frac{x}{2} + \frac{5}{x^3}\right)^{16}, \text{ give your answer in the form of } a \frac{b}{c}$$

(5 marks)

Golden Rules

- $n! = n \times (n - 1) \times (n - 2) \times (n - 3) \times \dots \times 3 \times 2 \times 1$
- $\binom{n}{r} = \frac{n!}{(n-r)! \times r!}$
- $(a + b)^n = a^n + \binom{n}{1}a^{n-1}b + \binom{n}{2}a^{n-2}b^2 + \dots + \binom{n}{r}a^{n-r}b^r + b^n$
- Critical thinking
 $(a + b)^3 = a^3 + 3a^2b + 3ab^2 + b^3$

Traditional or Online classes

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