

DSII: Quiz 2

April 02, 2026

Name:

ID:

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1. There are 13 students in a class. Show that at least two of them must share the same birth month. How many students are needed to guarantee this?

Solution:

2. Expand $(2a - b)^3$ using any method (Binomial Theorem, Pascal's Triangle, etc.). Write out every term clearly.

Solution:

Name:

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3. In a class of 30 students, 18 like math, 15 like science, and 10 like both. How many students like at least one of the two subjects?

Solution:

4. What is the coefficient of x^2 in the expansion of $(1 + x)^5$?

Solution:

5. In a survey of 100 people: 60 drink coffee, 50 drink tea, and 30 drink both. How many people drink neither coffee nor tea?

Solution:

Name:

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6. A drawer contains red, blue, and green socks. You are picking socks in the dark. What is the minimum number of socks you must pick to guarantee you have a matching pair?

Solution:

7. Find the coefficient of x^3 in the expansion of $(2 + x)^5$.

Solution:

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8. How many integers from 1 to 50 are divisible by 2 or by 3? (Include those divisible by both.)

Solution:

9. A classroom has students who each received a grade from 1 to 10 (whole numbers only). What is the minimum number of students that must be in the class to guarantee that at least 4 students received the same grade?

Solution:

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10. Find the full term (not just the coefficient) that contains x^2 in the expansion of $(3x + 2)^6$.

Solution: