Quiz 0
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Your name:

Important Points to Note

- Please PRINT your name in the space provided.
- This quiz is for diagnostic purposes and *will not be graded*, so work at it without fear!
- Answer each question as best as you can. It is not expected that you have perfect knowledge of everything below. If you do not know how to answer a question, please make this explicit. Write "DON'T KNOW" rather than leaving a blank space.
- Please *do not* use a calculator.

The Questions

1. Please indicate which of these courses you have taken or are currently taking, by checking the appropriate boxes in the table below:

Course	**Your Status**			
	Taken	Currently taking	Not taken	Equivalent course taken (give details)
CS 5				
CS 18				
MATH 3				
MATH 8				

2. Why are you taking this course? Please check the *single most appropriate* choice, even though more than one choice may apply to you.

   (a) Interested in Computer Science and this is an essential aspect of the field.

   (b) Interested in Mathematics generally and curious about this "discrete" thing.

   (c) Wanted to take a challenging course and this seems pretty challenging.

   (d) Interested in other Computer Science topics; this course is a requirement on the way.

   (e) Not sure why; just trying it out.

   (f) Other (please explain):

3. What do you expect to get out of this course? Please explain in *one sentence*. There is no right or wrong answer!

4. What is a mathematical proof?

5. Give an example of a mathematical theorem whose proof you had learnt in some earlier course. You don't have to give a proof and it is okay if you have forgotten how to prove it.

6. Consider the two sets $A = \{1, 3, 5, 10, 18, 19, 20\}$ and $B = \{3, 7, 10, 20\}$. What is $A \cup B$? What is $A \cap B$?

7. Give an example of an infinite set.

8. In mathematics, what is a "function"? How do you interpret the notation $f : A \to B$, where f is a function?

9. How do you interpret the notation

$$\sum_{n=1}^{5} \frac{n^2+1}{3n} \, ?$$

You don't have to calculate the final answer; just explain what the expression means.

10. Evaluate the sum $1 + 2 + 3 + \cdots + 100$. This time I *do* want a final answer. You don't need to show any steps.

11. Suppose I give you an 18-digit number. Without actually doing a tedious long division, how can you test if the number is divisible by 4? How about divisibility by 3? Explain the process using this number as an example: 401,561,230,950,884,216.

12. Multiple-choice exams like the SAT are often graded as follows. There are five choices for each question. Answering a question correctly earns you $+1$ point and answering a question incorrectly earns you -0.25 points. Why do you think this policy of awarding negative scores exists? Why does the figure -0.25 make sense? What would be the appropriate figure had there been ten choices for each question?

13. Which of the following games have you played? Please circle all that apply. For each circled choice, please indicate your familiarity/expertise with the game on a scale of 1 to 5 where 1 = "played a couple of times", 3 = "played often enough that I can explain the workings of the game to a beginner", and 5 = "very familiar with this game and its nuances".

    (a) Chess

    (b) Poker

    (c) Scrabble

    (d) Bridge

    (e) Backgammon