

Math 200 Midterm Exam

Due Monday, March 8th, at 5:00 PM

Part 1: Complete the following exercises, showing all work. In addition to the solution and showing all work, you must provide a short paragraph write up with the reasoning for your answer.

The midterm will not be accepted if it is not typed. No exceptions.

You are allowed any and all resources at your disposal, including working with each other and using the internet. However, in the case that you work with someone else, be sure to put your reasoning write ups in your own words - it would be considered academic dishonesty otherwise. This exam is out of 100 points, each question is worth 20 points.

1. $A = \{3, 3.14, \pi, 14\}$
 $B = \{x \in \mathbb{N} : x \leq 15\}$
 $C = \{|A|, |B|\}$

List the elements in the following set: $\mathcal{P}((A \cup C) - (B \cap A))$

2. Use truth tables to show that the following statement will always be false: $((\neg p) \wedge q) \wedge (p \vee (\neg q))$.
3. Translate the negation of the following statement into symbolic logic: "There is a integer x for every integer y such that $x + y$ is equal to 14."
4. How many 10 digit integers are even or have no more than four 4s?
5. At Dr. Freedman's Bakery, they offer 7 kinds of cake. Today they have in stock, 21 chocolate cakes, 14 apple spice cakes, 8 coffee cakes, 16 crab cakes, 5 patty cakes, 4 cheesecakes, and 3 pancakes. You have been tasked with bringing in to class 6 cakes. How many different cake orders could you have?

Part 2: At this time you *may* also resubmit your homeworks for up to 75% credit. Re-submissions will be graded on a different scale however, each question will be given: 1 point for a correct answer with no work, 2 points for an incorrect answer with sufficient and reasonable work shown, and 3 points for a correct answer with work shown.

You do not have to redo your homework responses but if you choose to do so each homework should be submitted in a separate document clearly labeled in the midterm assignment in Google Classroom.

Good Luck!