MATH 328: Practice Midterm 1

Show all appropriate work.

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1. At a health studies department 16 faculty members are running regularly, 16 are swimming regularly, 19 are playing tennis regularly, 5 run and swim, 9 run and play tennis, 10 swim and play tennis and 3 are doing all three sports. How many people do exactly one of those activities?

2. How many ways are there to distribute 18 chocolate doughnuts, 12 cinnamon doughnuts, and 14 powdered sugar doughnuts to four school principals if each principal demands at least 2 doughnuts of each kind?

3. A multiple choice exam has 20 questions with 4 possible answers for each question. How many different exam papers would earn a grade of 70%?

4. Let $A = \{1, 2, 3, 4, 5, 6, 7\}$ How many subsets does A such that 2 and 6 aren't both in the subset? Simplify your answer.