

Math 574 Exam 1 1987

There are 10 problems. Each problem is worth 10 points.

Circle your answer. If the problem is at all tricky,

explain your answer. There are 5 pages.

Write your answer as a number whenever possible.

① How many bit strings have length 3 or length 4?

② How many 5 element subsets does an 8 element set have?

③ A pizza company has 8 different toppings: mushrooms, onions, pepperoni, olives, sausage, peppers, pineapple, and spinach. Any combination of these toppings can be added to a pizza. How many varieties of pizza can be made?

④ A senate committee has 7 Democrats and 4 Republicans. How many ways are there to form a subcommittee consisting of 4 Democrats and 2 Republicans?

⑤ How many integers between 0 and 1,000,000 contain the digit 2?

⑥ How many ways are there to arrange John, Bill, Tom, Dick and Harry in a line if John must stand next to Bill?

⑦ How many ways are there to arrange John, Bill, Tom, Dick and Harry in a line if John refuses to be first and Bill refuses to be second?