# 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?

$2^3 + 2^4 = 8 + 16 = 24$

length 3 length 4

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

$\binom{8}{5} = \frac{8 \cdot 7 \cdot 6}{3!} = 56$

(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?

$2^8 = 256$