Math 574 1992 Exam 2 Solutions

There are 6 problems. The exam is worth a total of 100 points. SHOW your work. $\boxed{CIRCLE}$ your answer.

1. (17 points) If a coin is flipped 8 times, then what is the probability that the coin lands on heads exactly 4 times?

$$\frac{\binom{8}{4}}{2^8}$$

2. (17 points) Eight friends decide to have their picture taken. How many ways are there to arrange all eight people in a straight line, if John insists on being next to Mary?

Ways to arrange J-M, other 6: $7!$

" " " M-J, other 6: $7!$

Total: $2(7!)$

3. (17 points) A multiple choice test consists of 10 questions. There are 3 choices for each of the first 4 questions and 4 choices for each of the last 6 questions. Each question has exactly one correct answer. If a student chooses answers at random, then what is the probability that the student will guess a perfect paper?

$$\frac{1}{(3^4)(4^6)}$$