

MATH 187 – Section 002 – Quiz 5

You may work with other class members on this quiz, but you may *not* receive assistance from people not in MATH 187, Section 002. You must show all of your work to receive full credit. Do all your work on other sheets of paper and be sure to staple all the pieces of paper together or **YOU WILL GET A 'ZERO' ON THE QUIZ**. Your work on this quiz must be handed in by the beginning of class on Friday, 7 March 2008. **GOOD LUCK!**

- 1) Do Exercise 14.8 in our text.
- 2) Do Exercise 15.2e in our text.
- 3) Suppose we have a group of 60 people.
 - a) In how many ways may we divide this group of 60 into 2 subgroups of 30 people each?
 - b) In how many ways may we divide this group of 60 into 3 subgroups of 20 people each?
- 4) Suppose we have a group of 30 people, half of whom are female and half of whom are male. In addition, 10 of these people are wearing green shirts, 10 are wearing red shirts, and 10 are wearing purple shirts (every person is wearing exactly one shirt).
 - a) In how many ways can they join hands in a circle?
 - b) In how many ways can they join hands in a circle, if they alternate in gender around the circle?
 - c) Suppose we require that the 30 people circle up in such a way that no one is next to a person who is wearing the same color shirt as he/she is. In how many ways can this be done?