

## Math 2001: PHW12

1. From the book do:

**12.3.** 6

**12.5.** 6, 8

**12.6.** 4, 8, 10

2. **A Ramsey game.** This two-player game requires a sheet of paper and pencils of two colors, say red and blue. Six points on the paper are chosen, with no three in line. Now the players take a pencil each, and take turns drawing a line connecting two of the chosen points. The first player to complete a triangle of his/her own color loses. (Only triangles involving 3 points count). Prove that the game never ends in a tie. (Hint: think pigeonhole principle).