

Math 2001: PHW12

Due: April 27, 2016

1. From the book do:

12.3. 6

12.4. 4, 10

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 with vertices at the chosen points count). Prove that the game never ends in a tie. (Hint: think pigeonhole principle).