1. (5 points) Using algebraic tools find

\[
\text{minimize } 100a + 10b + c \text{ subject to } 3a + 5b + 8c + 9d = 47
\]

and \(a, b, c, d\) are nonnegative integers.

2. (5 points) How many ways are there to express 10 dollars in terms of pennies, nickels, dimes, and quarters, using exactly 100 coins?

3. (20 points) Suppose you were invited as banquet speaker to an institution (of your choice) from the following list (a junior high school, a retiree’s club, a community church, Harvard university, your local boy scout troop, an army base) with the idea of convincing people that polynomials and/or rings of polynomials are useful and beautiful. You are meant to give a 30-50 minutes lecture. Write the notes of such presentation! HINT: Pick your topic carefully. Boy scouts can actually be more difficult to convince than Harvard professors!

4. (15 points) Write carefully in \LaTeX{} the class notes for one lecture day (see example at web page).