11. Prove that if x and y are optimal solutions of an LP, then every point on the line segment $\overline{xy}$ is also an optimal solution of that LP.

12. Work through Section 3.7 and solve the exercises there.

13. A chemical factory has to mix four gases in such a way that

 - the total gas volume is exactly $100m^3$;

 - the mixture doesn't cost more than $500;

 - the portion of the fourth gas is no more than 50%;

 - at least $8m^3$ of the second gas is contained in the mixture;

 - at most $3g/m^3$ sulfur is in the mixture;

 - the heating value of the mixture should be as large as possible.

The following table shows the specific data for all four gases:

	Gas 1	Gas 2	Gas 3	Gas 4
sulfur contained in g/m^3	7.244	0	0.2	2
costs in $ per m^3	15	38	1.40	2.90
heating value per m^3	1.056	2.043	0.17	5.74

Introduce appropriate decision variables and state the problem as an LP in standard form.

14. Work on problems 1 and 2 of Section 3.9 in the textbook.