Week 2 Design Exercises

Design Exercise 2-1: 2-bit Adder
a. Design a circuit with standard 2-port logic gates (NAND, NOR, AND, OR, XOR, XNOR, NOT) which adds two 2-bit numbers. The circuit will have 4 input wires. How many output wires are required?

b. Create a schematic design (for use in a project in Quartus II) which adds two 2-bit numbers.

Design Exercise 2-2: 8-bit Adder
Design a Quartus II project which adds two 8-bit numbers using a Verilog program.

Design Exercise 2-3: Digital multiplication
a. Design a circuit with standard 2-port logic gates (NAND, NOR, AND, OR, XOR, XNOR, NOT) which multiplies two 2-bit numbers. The circuit should have 4 input wires. How many output wires are required?

b. Design a Quartus II project which multiplies two 8-bit numbers using a Verilog program.