Binary System Worksheet

Convert the following numbers from binary to decimal. BE SURE YOU CAN PERFORM THESE CONVERSIONS ON PAPER!!!! You can use a calculator to check your answer, but BE SURE you can work these out without a calculator. On the Midterm and Final Exams, you will have to do at least one conversion and WILL NOT have the use of a calculator.

1. 1110 = 14

(2^3) + (2^2) + (2^1) + 0

8 + 4 + 2 = 14

1. 10001 = 17

(2^4) + 0 + 0 + 0 + (2^0)

16 + 0 + 0 + 0 + 1 = 17

1. 110010 = 50

(2^5) + (2^4) + 0 + 0 + (2^1) +0

32 + 16 + 0 + 0 + 2 + 0 = 50

1. 10010101 = 149

(2^7) + 0 + 0 + (2^4) + 0 + (2^2) + 0 + (2^0)

128 + 0 + 0 + 16 + 0 + 4 + 0 + 1 = 149

Convert the following numbers from decimal to binary. SHOW YOUR WORK.

1. 9 = 1001

2^ 3 = 8 + 0 + 0 + 2^ 0 = 9

1 0 0 1

1. 14 = 1110

2^3 =8 + 2^2=12 + 2^1 = 14 + 0

1 1 1 0

1. 39 = 100111

2^5=32 + 0 + 0 + 2^2=36 + 2^1=38 + 2^0 = 39

1 0 0 1 1 1

1. 117 = 1110101

2^6 = 64 + 2^5 =96 + 2^4 =112 + 0 + 2^2=116 + 0 + 2^ 0= 117

1 1 1 0 1 0 1