

Homework 2

1. Please convert the following binary to decimal.
Show your work.

$$\begin{array}{r} 1100011 \\ 1 \cdot 2^6 + 1 \cdot 2^5 + 0 \cdot 2^4 + 0 \cdot 2^3 + 0 \cdot 2^2 + 1 \cdot 2^1 + 1 \cdot 2^0 \\ = 64 + 32 + 0 + 0 + 0 + 2 + 1 \\ = 99 \end{array}$$

2. Please convert the following hexadecimal to binary. Show your work.

hexadecimal \rightarrow decimal

$$6 \cdot 16^1 + 8 \cdot 16^0 = 6 \cdot 16 + 8 \cdot 1 = 96 + 8 = 104$$

$$\begin{array}{r|l} 2 & 104 & 0 \\ 2 & 52 & 0 \\ 2 & 26 & 0 \\ 2 & 13 & 1 \\ 2 & 6 & 0 \\ 2 & 3 & 1 \\ & 1 & 1 \end{array}$$

1101000

3. Please research on "Pony Express", write a few short paragraphs to discuss the purpose, methodology, difficulties, and an interesting finding of "Pony Express".

The Pony Express was a means of U.S. mail delivery. It used a system of horse and rider relays to transport mail between Missouri and California. The goal of the Pony Express was to allow news to be brought to the west faster than the established 24 day method of delivery. Using the horse and rider relay system, the pony express was able to deliver news in 10 days.

While the pony express shortened the time it took to transport news, it still had its difficulties. The riders faced rough terrain and harsh weather. They suffered from lack of water on the trail and were threatened by indian attacks. The difficulties surrounding the pony express, were solved by the telegraph.

The most interesting thing about the pony express is that the pony express only lasted 18 months. Considering the historical significance that historians place on the pony express, I would have thought that the system was in place for longer than 18 months.

4. Please research on 1980s Mainframe computers and modern day computers. Write a few short paragraphs to compare these two types of computers regarding the following: cost, size, performance, and energy consumption.

While computers made in the 1980s and those of the modern day share the name of computer, they are vastly different. The computers of the 1980s cost upwards of \$800. When the Apple Macintosh entered the market in 1984, it was priced at \$2,500. While modern computers can still be quite expensive, there are many cheaper options available. Today you can even get a computer for under \$100.

Modern computers are much smaller than their ancestors. Today, computers can be made so small that they fit in the palm of your hand. Back in the 1980s this was not the case and computers would take up an entire room.

The performance of modern computers has surpassed those of the 1980s. While most computers in the 1980s did not have color displays, this is standard in modern computers. Modern computers have become more user friendly and process information at a much faster rate. Modern computers also consume less power and are able to be powered by rechargeable batteries.

5. Please research on Morse Code. List (Draw) all Morse Code.

A	• —	N	— •
B	— • • •	O	— — —
C	— • — •	P	• — — •
D	— • •	Q	— — • —
E	•	R	• — •
F	• • — •	S	• • •
G	— — •	T	—
H	• • • •	U	• • —
I	• •	V	• • • —
J	• — — —	W	• — —
K	— • —	X	— • • —
L	• — • •	Y	— • — —
M	— —	Z	— — • •

0: — — — — —
1: • — — — —
2: • • — — —
3: • • • — —
4: • • • • —
5: • • • • •
6: — • • • •
7: — — • • •
8: — — — • •
9: — — — — •