Class 2 Homework

1. You recieve the following binary transmission,

101101101101101001

and the information that a message has been sent 3 times. You know a single bit of the transmission has been flipped due to a transmission error. What was the intended message? Which bit was flipped?

2. You recieve the following binary transmission,

1011010

and the information that the final bit of the transmission describes the parity of the message. Assuming that only one bit could have been flipped, was there a transmission error? If there was, can you correct it? Why or why not?

3. You recieve the following binary transmission,

101000100110

and the information that each of the 3 groups of 4 bits in the transmission is composed of a 3-bit segment of the message, directly followed by a parity bit for that segment. Was there a transmission error? If so, in which segment of the message did the error occur? Again, we're assuming that only one bit could have been flipped in the entire transmission.

4. Assuming that only one bit can be flipped due to a transmission error is kind of unrealistic. Can you find a way to transmit a message so that it can be identified as having two errors, no matter where the errors are in the transmission? How about three?