

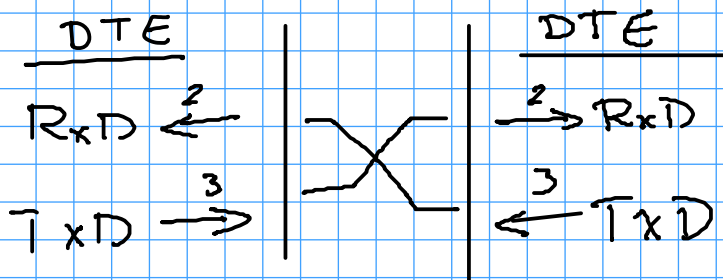
# ELEX 3525 - Lecture 4 Exercise Solutions

Exercise 1: Is the "Transmit Data" (TxD) signal an input or an output? How about "Receive Data" (RxD)? Is a computer a 'modem' or a 'terminal'?

TxD is output on DTE  
 input on DCE

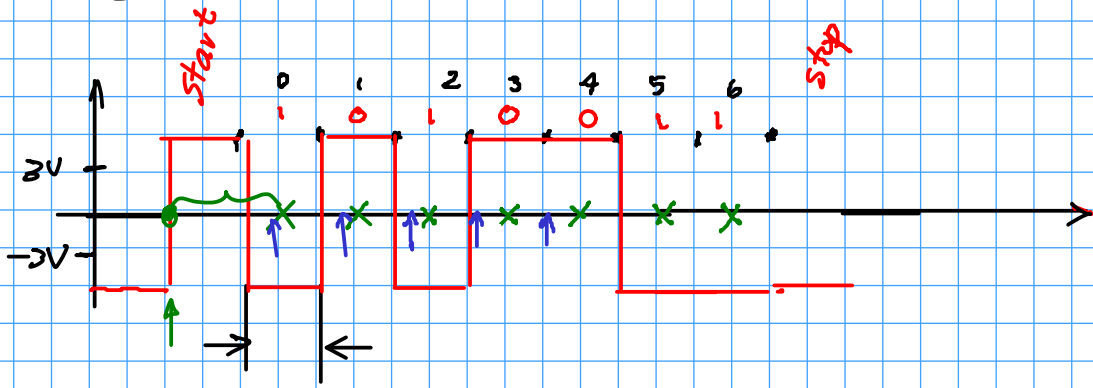
RxD is reverse

computer is normally a DTE ↗ modem (DCE)



Exercise 2: Draw the waveform used to send the ASCII character 'e' (hex 65) at 9600 bps with seven data bits and no parity.

0x65 = 110 0101



$$\frac{1}{9600} \approx \frac{1}{10^4} \approx 10^{-4} \text{ s} = 100 \mu\text{s}$$

Exercise 3: What happens if the receiver's clock is running faster than the transmitter clock?

- would sample the bits at wrong time (earlier)
- may receive errors (due to some bit being sampled twice)

bit 0..7  
bit 1..8

Exercise 4: What would happen if the receiver was expecting 8-bit characters and the transmitter was sending 7-bit characters? What about the reverse case?

		receiver	
		7	8
transmitter	7	OK	- stop is seen as bit? - missing stop bit
	8	- bit 7 treated as stop bit	OK