# CSC535 Homework#1

Problem#1

1. 8/125 = 0.064 bps
2. Since T-1 line carries 24 channels and each are 8 bits= 8\*24 = 192 so 192/125 = 1.544 megabits per second.
3. 1+1.544 mbps = 2.544
4. STDM transmits data only from input devices that have data to transmit. It allows the bandwidth to be divided arbitrarily among a number od channels. It also ensures that no slots will be wasted. STDM is better when you cannot afford to waste time slots.

Problem#2

1. (N(N-1))/2
2. All clients/users will need one link to connect to the switch which will connect all of them. So, if we had X user we would only need X links.
3. Without using switching if we had 10 user it would cost $337,500 (n(n-1))/2 \* cost (7,500)
4. With using switching with 10 users it would cost us (10\*75,000) +40,000 = $115,000

Problem# 3

1. Data-link Layer
2. Multiplexing is to let signals transmit more efficiently over a specified channel which decreases the transmission costs. Switching is used to forward packets from one port to another heading towards the specified address.