

1. In a CSMA / CD network running at 1 Gbps over 1 km cable with no repeaters, the signal speed in the cable is 200000 km/sec. What is minimum frame size?
2. A 2 km long broadcast LAN has 10^7 bps bandwidth and uses CSMA / CD. The signal travels along the wire at 2×10^8 m/sec. What is the minimum packet size that can be used on this network?
3. A and B are the only two stations on Ethernet. Each has a steady queue of frames to send. Both A and B attempts to transmit a frame, collide and A wins first back off race. At the end of this successful transmission by A, both A and B attempt to transmit and collide. The probability that A wins the second back off race is ____ .
4. Suppose nodes A and B are on same 10 Mbps Ethernet segment and the propagation delay between two nodes is 225 bit times. Suppose A and B send frames at $t=0$, the frames collide then at what time, they finish transmitting a jam signal. Assume a 48 bit jam signal.