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 107 bps bandwidth and uses CSMA / CD. The signal travels along the wire at 2 x 108 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.
5. Suppose nodes A and B are attached to opposite ends of the cable with propagation delay of 12.5 ms. Both nodes attempt to transmit at t=0. Frames collide and after first collision, A draws k=0 and B draws k=1 in the exponential back off protocol. Ignore the jam signal. At what time (in seconds), is A’s packet completely delivered at B if bandwidth of the link is 10 Mbps and packet size is 1000 bits.