Problem 6 :

a. $d_{prop} = m/s$

b. $d_{trans} = L/R$

c. $d = m/s + L/R$

d. It's leaving host A.

e. It's still in the link.

f. It has reached host B.

g. $m = (L/R) \cdot s = 536 km$

Problem 8.

a. $3 Mbps / 150 kbps = 20$

b. $p = 0.1$

c. $P = \binom{120}{n} p^n (1-p)^{120-n}$
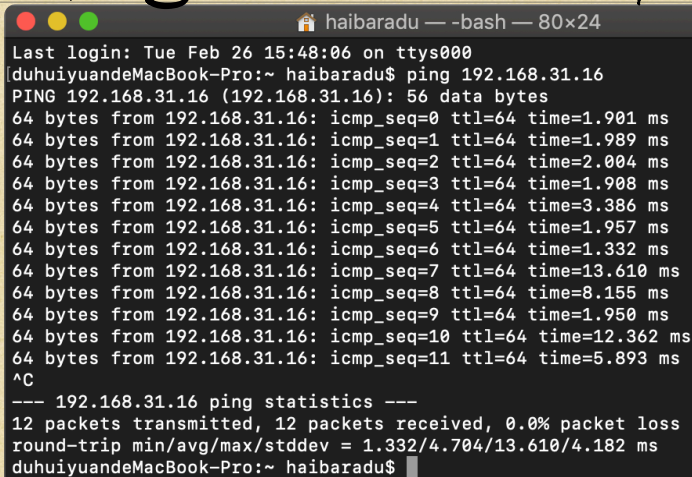
d. $P = 1 - \sum_{n=0}^{20} \binom{120}{n} p^n (1-p)^{120-n}$

Problem 9

a. $N = 1Gbps / 100kbps = 10000$

b. $P = \sum_{n=N+1}^{M} \binom{M}{n} p^n (1-p)^{M-n}$

1. ping another laptop

```
                    🏠 haibaradu — -bash — 80×24
Last login: Tue Feb 26 15:48:06 on ttys000
[duhuiyuandeMacBook-Pro:~ haibaradu$ ping 192.168.31.16                        ]
PING 192.168.31.16 (192.168.31.16): 56 data bytes
64 bytes from 192.168.31.16: icmp_seq=0 ttl=64 time=1.901 ms
64 bytes from 192.168.31.16: icmp_seq=1 ttl=64 time=1.989 ms
64 bytes from 192.168.31.16: icmp_seq=2 ttl=64 time=2.004 ms
64 bytes from 192.168.31.16: icmp_seq=3 ttl=64 time=1.908 ms
64 bytes from 192.168.31.16: icmp_seq=4 ttl=64 time=3.386 ms
64 bytes from 192.168.31.16: icmp_seq=5 ttl=64 time=1.957 ms
64 bytes from 192.168.31.16: icmp_seq=6 ttl=64 time=1.332 ms
64 bytes from 192.168.31.16: icmp_seq=7 ttl=64 time=13.610 ms
64 bytes from 192.168.31.16: icmp_seq=8 ttl=64 time=8.155 ms
64 bytes from 192.168.31.16: icmp_seq=9 ttl=64 time=1.950 ms
64 bytes from 192.168.31.16: icmp_seq=10 ttl=64 time=12.362 ms
64 bytes from 192.168.31.16: icmp_seq=11 ttl=64 time=5.893 ms
^C
--- 192.168.31.16 ping statistics ---
12 packets transmitted, 12 packets received, 0.0% packet loss
round-trip min/avg/max/stddev = 1.332/4.704/13.610/4.182 ms
duhuiyuandeMacBook-Pro:~ haibaradu$
```

P.S. : Windows Defender should
be shut down.

2. traceroute a server.

```
                      🏠 haibaradu — -bash — 80×24
[duhuiyuandeMacBook-Pro:~ haibaradu$ traceroute www.baidu.com
traceroute: Warning: www.baidu.com has multiple addresses; using 119.75.217.109
traceroute to www.a.shifen.com (119.75.217.109), 64 hops max, 52 byte packets
 1  xiaoqiang (192.168.31.1)  2.132 ms  1.305 ms  1.076 ms
 2  10.132.127.254 (10.132.127.254)  1.829 ms  1.965 ms  3.699 ms
 3  172.20.255.250 (172.20.255.250)  1.515 ms  1.546 ms  1.337 ms
 4  172.20.255.254 (172.20.255.254)  2.770 ms  5.877 ms  2.752 ms
 5  172.17.11.214 (172.17.11.214)  1.513 ms  1.583 ms  1.484 ms
 6  172.17.11.254 (172.17.11.254)  2.362 ms  2.634 ms  4.345 ms
 7  218.197.158.254 (218.197.158.254)  5.122 ms  4.508 ms  2.764 ms
 8  wh0.cernet.net (202.112.53.81)  3.071 ms  3.340 ms  2.909 ms
 9  101.4.114.229 (101.4.114.229)  2.170 ms  3.006 ms  4.310 ms
10  101.4.117.38 (101.4.117.38)  22.624 ms  28.580 ms  26.017 ms
11  101.4.112.1 (101.4.112.1)  24.045 ms  20.227 ms  23.865 ms
12  219.224.102.230 (219.224.102.230)  22.807 ms  23.837 ms  24.359 ms
13  43.252.48.194 (43.252.48.194)  27.977 ms  21.494 ms  22.509 ms
14  101.4.130.38 (101.4.130.38)  22.912 ms  22.568 ms  21.787 ms
15  182.61.253.119 (182.61.253.119)  24.891 ms  22.207 ms  24.003 ms
16  182.61.253.126 (182.61.253.126)  72.242 ms  27.968 ms  30.456 ms
17  * * *
18  * * *
19  *^C
[duhuiyuandeMacBook-Pro:~ haibaradu$
duhuiyuandeMacBook-Pro:~ haibaradu$
```