

# hw2

1. T

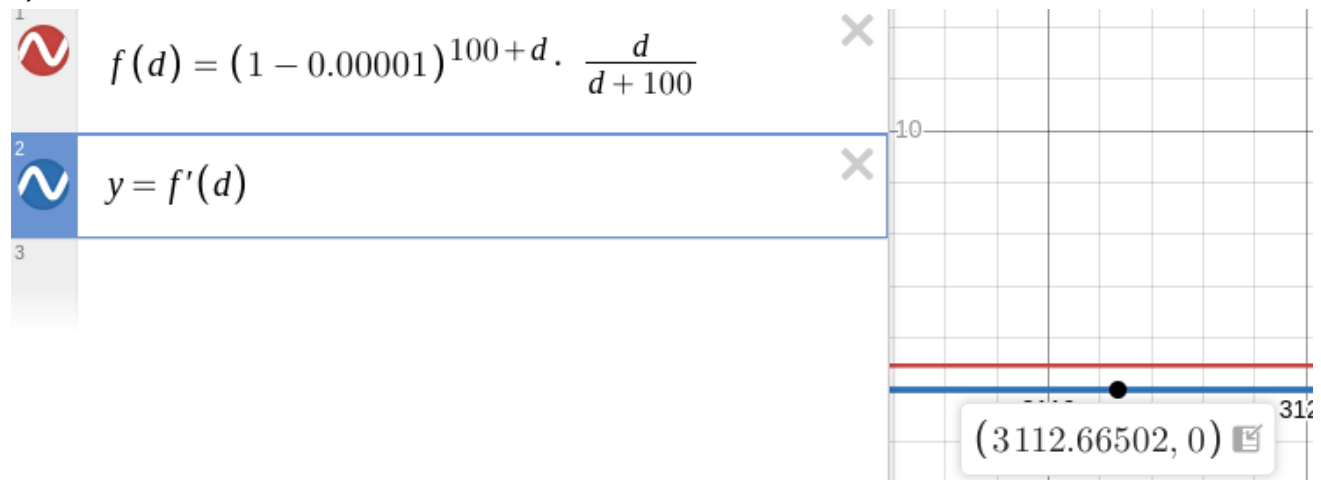
a) The role of the router is to accumulate traffic on a network and direct it to where it is supposed to go. It gets information from devices on the network and sends it to where it is supposed to go. Then when receiving messages, it finds the right device on the network to send it to. Overall it connects devices across networks (core device)

b) The two models I picked are *Nexus 7000 Supervisor 1* with 8gb memory and *Nexus 7700 Supervisor 3E* with 64. It also has 8 core processor (vs 2 core on the 7000) with 240gb ssd. In general, more gb RAM means more temporary storage so in the case of routers, it means a larger queue for network traffic allowing less packets to be dropped. It also allows the router to keep a bigger routing table which will allow for more devices to be connected

2. a)  $1 - (1 - p)^{h+d}$

b)  $((1 - p)^{h+d} * \frac{d}{h+d} * C)$

c)  $\approx 3113$



3. a)

10k bits = .01 mb / 1mbps = .01s = 10 ms + 1 ms delay = 11ms

.01 mb / 2mbps = .005s = 5ms + 2ms delay = 7ms

7ms + 11ms = 18ms

b)

1k bits = .001 mb / 1mbps = .001s = 1 ms + 1 ms delay = 2ms

.001 mb / 2mbps = .0005s = 0.5ms + 2ms delay = 2.5ms

2+2.5+9 \* 1 since we only care about when the last packet reaches = 13.5

4. a) UDP, TCP, ARP

b) Host: 192.168.50.27 Others: 162.159.134.234 and 185.188.109.133

5. a) 0.0436 time units (not specified)

b) HTTP1.1 for both

c) Host: 192.168.50.27 Server: 128.119.245.12

d) 200

e) Yes, a HTTP 404 Not found is received

f) tls1.3 and TCP

621	13.246128937	129.237.135.235	192.168.50.27	TCP
622	13.246502432	129.237.135.235	192.168.50.27	TCP
623	13.247463664	129.237.135.235	192.168.50.27	TLSv1.3
624	13.247494034	192.168.50.27	129.237.135.235	TCP
625	13.252496260	192.168.50.27	129.237.135.235	TLSv1.3
626	13.253156304	192.168.50.27	129.237.135.235	TLSv1.3
627	13.253245497	192.168.50.27	129.237.135.235	TLSv1.3
628	13.258715067	129.237.135.235	192.168.50.27	TCP
629	13.262525542	129.237.135.235	192.168.50.27	TLSv1.3
630	13.262525824	129.237.135.235	192.168.50.27	TLSv1.3
631	13.262698944	192.168.50.27	129.237.135.235	TLSv1.3
632	13.263024697	129.237.135.235	192.168.50.27	TCP
633	13.263024792	129.237.135.235	192.168.50.27	TCP
634	13.263024874	129.237.135.235	192.168.50.27	TLSv1.3
635	13.267397089	129.237.135.235	192.168.50.27	TCP
636	13.287519361	129.237.135.235	192.168.50.27	TLSv1.3
637	13.287558616	192.168.50.27	129.237.135.235	TCP