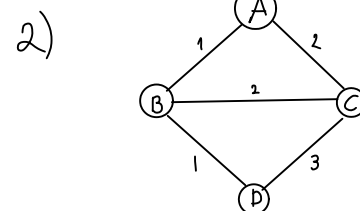
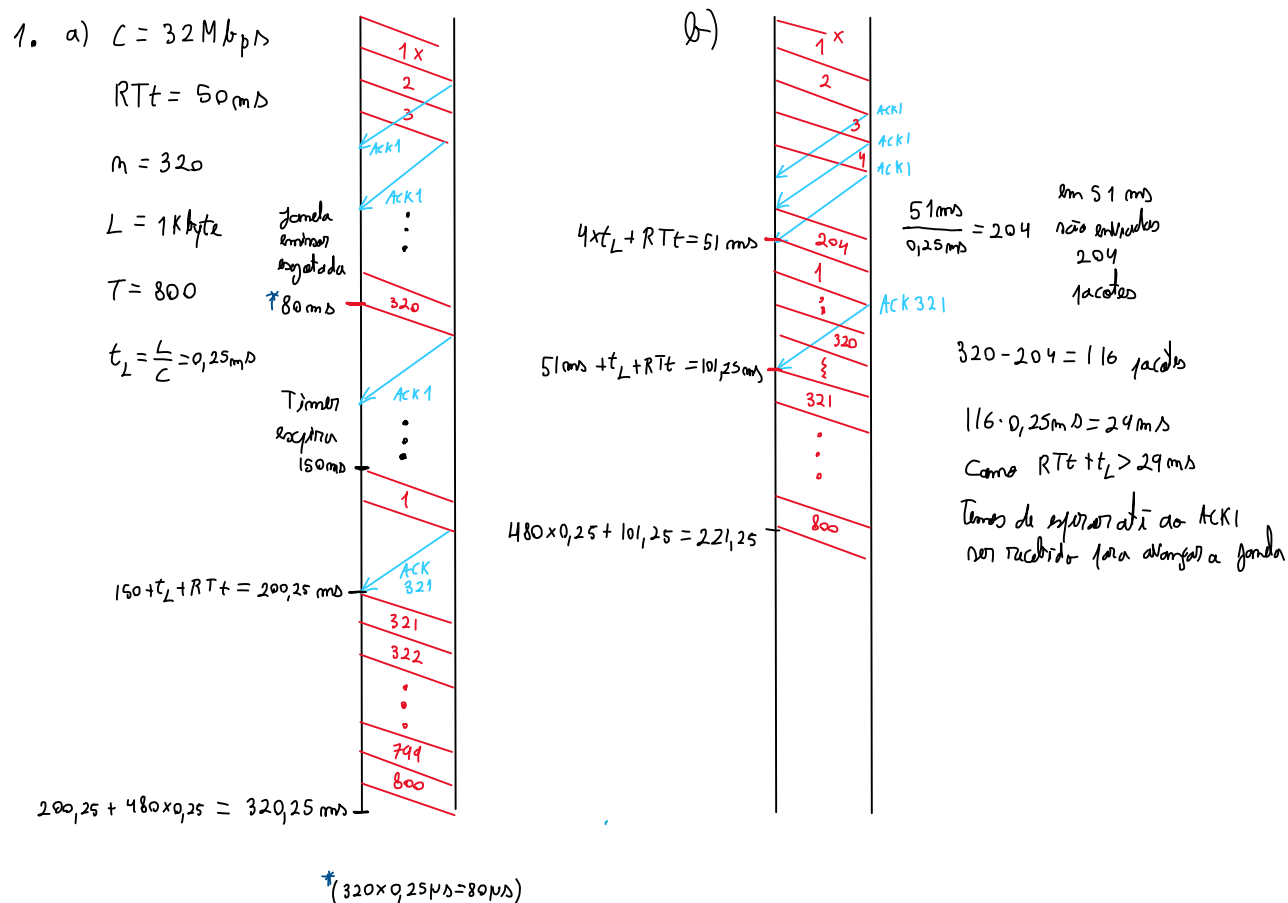
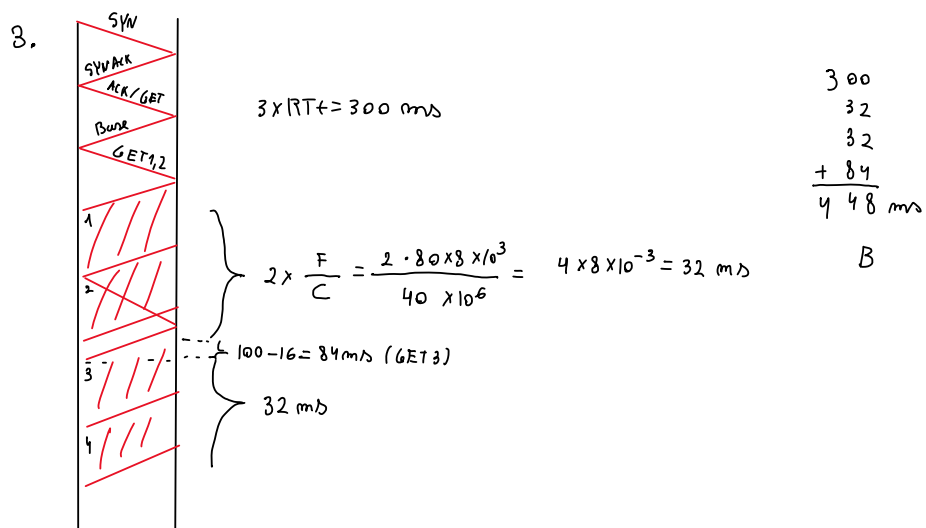


1. $F = 5 \text{ Mbytes}$ $t_p = 10 + 10 + 80 = 100 \text{ ms}$
 $C_{1,3} = 200 \text{ Mbps}$ $t_{atraso} = \frac{5 \times 8}{100 \times 8} = \frac{40}{100} = 400 \text{ ms}$
 $t_{p1,3} = 10 \text{ ms}$ $t_{total} \approx 100 + 400 = 500 \text{ ms}$
 $C_2 = 100 \text{ Mbps}$ A
 $t_{p2} = 80 \text{ ms}$

2. $R = 32 \text{ Kbps}$ $t_{total} = \frac{L}{R} + \frac{L}{C} + t_p =$
 $L = 32 \text{ bytes}$ $= \frac{32 \times 8}{32 \times 10^3} + \frac{32 \times 8}{50 \times 10^6} + 12 \cdot 10^{-3} =$
 $C = 50 \text{ Mbps}$ $= \frac{32 \times 8}{32 \times 10^3} + \frac{32 \times 8}{50 \times 10^6} + 12 \cdot 10^{-3} =$
 $t_p = 12 \text{ ms}$ $= (8 + 12) 10^{-3} = 20 \text{ ms}$ B



a)

	A	B	C
	2, B	1, D	3, B

b)

	A	B	C
T=0	2, B	1, D	3, B
T=1	2, B	3, A	3, B
T=2	4, B	3, A	3, D
T=3	4, B	5, A	3, D
T=4	5, C	5, A	3, D
T=5	5, C	5, C	3, D
T=6	5, C	5, C	3, D

c) Ciclo entre A e B
 $RTT = 1 + 2 = 3$
d) B-D custo 2:

	A	B	C
D-B=3	3, B	2, D	3, D
	3, B	4, A	3, D

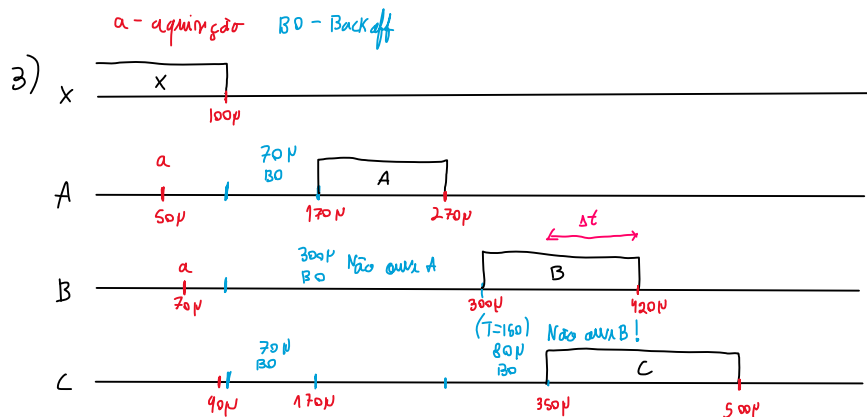
B-D custo 3:

	A	B	C
D-B=3	4, B	3, D	3, D
	4, B	5, A	3, D

B-D custo 4:

	A	B	C
D-B=3	5, B	4, D	3, D
	5, B	5, C	3, D

Situação estável
não há ciclos



a) $T_A = 170 \mu s$ $T_B = 300 \mu s$ $T_C = 350 \mu s$

b) Apenas A.

c) $backoff_C > backoff_B + t_B - \Delta t$ Logo como $t_B = 120 \mu s$
 $\Delta t = 420 - 350 = 70$
Temas $backoff_C > backoff_B + 40 //$