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3a) $d_{prop} = m/s$ sec

b) $d_{trans} = L/R$ sec

c) $d_{end\text{-}to\text{-}end} = (m/s + L/R)$ sec.

d) The last bit of the packet is just leaving Host A

e) The first bit of the packet is in the link and has not yet reached Host B

f) The first bit of the packet has reached Host B

g) $m = \frac{L}{R} = \frac{120}{56 \times 10^3}(2.5 \times 10^8) = 536$ Km

4)

$$d_{end\text{-}end} = \frac{L}{R_1} + \frac{L}{R_2} + \frac{L}{R_3} + \frac{d_1}{s_1} + \frac{d_2}{s_2} + \frac{d_3}{s_3} + d_{proc} + d_{proc}$$

$d_{proc} = 0.003$

$$= \frac{(1500 \times 8)}{2 \times 10^6} + \frac{(1500 \times 8)}{2 \times 10^6} + \frac{(1500 \times 8)}{2 \times 10^6} + \frac{(5000 \times 10^3)}{2.5 \times 10^8} + \frac{(4000 \times 10^3)}{2.5 \times 10^8} + \frac{(1000 \times 10^3)}{2.5 \times 10^8}$$

$$= 0.006 + 0.006 + 0.006 + .02 + .016 + .004 + 0.003 + 0.003$$

$$= 0.064 \text{ sec}$$

or 64 msec