



10 Gerbong

Sebuah kereta api terdiri dari **10 gerbong** bergerak dengan kecepatan **90 km/jam**. Setiap stasiun memerlukan waktu **15 detik** untuk melayani satu gerbong. Jarak antara dua stasiun adalah **150 km**.

$$\text{Transmission Delay} = \boxed{} \times \boxed{} = \boxed{}$$

$$\text{Propagation Delay} = \frac{\boxed{}}{\boxed{}} = \boxed{}$$

Total Delay = Transmission Delay + Propagation Delay

$$= \boxed{} + \boxed{}$$

$$= \boxed{} \text{ menit}$$

Sebuah jaringan komputer mentransfer data sebesar 500 MB dalam waktu 50 detik. Hitunglah throughput dari jaringan tersebut!

- 1 MB = $8 \times 1024 \times 1024$ bits.

$$\begin{aligned} 500 \text{ MB} &= \boxed{} \times 8 \times 1024 \times 1024 \text{ bits} \\ &= \boxed{} \end{aligned}$$

- Waktu = 50 detik

Throughput = Total Data yang Ditransfer / Waktu yang Diperlukan

$$= \frac{\boxed{}}{\boxed{}} = \boxed{} \text{ (bps)}$$

Sebuah perangkat mengirimkan 1,000 paket data ke server, tetapi hanya 950 paket yang berhasil diterima. Hitunglah persentase packet loss.

Jumlah Paket Hilang = Jumlah Paket Dikirim - Jumlah Paket Diterima

$$= \boxed{} - \boxed{} = \boxed{}$$

Packet Loss (%) = (Jumlah Paket Hilang / Jumlah Paket Dikirim) $\times$ 100%

$$= \frac{\boxed{}}{\boxed{}} \times 100\% = \boxed{}$$

What are the five layers in the Internet protocol stack? What are the principal responsibilities of each of these layers?

Suppose Alice and Bob are sending packets to each other over a computer network. Suppose Trudy positions herself in the network so that she can capture all the packets sent by Alice and send whatever she wants to Bob; she can also capture all the packets sent by Bob and send whatever she wants to Alice. List some of the malicious things Trudy can do from this position.

In addition to reducing delay, what are reasons to use message segmentation?