waiting time of process i

$$W_{p_i} = \underbrace{\text{Exit time}_{p_i}}_{\text{from gantt chart}} - \underbrace{\text{Arrival time}_{p_i}}_{\text{from question}} - \underbrace{\text{cpuburst}_{p_i}}_{\text{from question}}$$

if not provided by the question it is equal to 0

$$\text{average waiting time} = \overline{W} = \frac{\sum_{i=1}^{n} W_{p_i}}{n}$$

$$\text{average turnaround time} = \overline{W} + \left(\frac{\sum_{i=1}^{n} \text{cpuburst}_{p_i}}{n} \right)$$

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little's formula (Queuing theory)

$$n = \lambda \times W$$

- n: average length of the queue
- λ: average arrival rate
- W: average waiting time