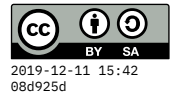


Quiz 4

13 November 2019



Solutions

Questions

1. Below is an expression written in **prefix notation**. Evaluate it and show the final result. **Note:** thanks to the parentheses, a prefix operator can have more than two operands.

$$\begin{aligned} & \bullet (* (+ 4 1) (+ (- 5 2) 3)) \\ & = (* 5 (+ (- 5 2) 3)) \\ & = (* 5 (+ 3 3)) \\ & = (* 5 6) \\ & = 30 \end{aligned}$$

2. Below is an expression written in **postfix notation**. Evaluate it and show the final result.

$$\begin{aligned} & \bullet 3 5 4 + + 2 2 1 + 2 * * - \\ & = 3 9 + 2 2 1 + 2 * * - \\ & = 12 2 2 1 + 2 * * - \\ & = 12 2 3 2 * * - \\ & = 12 2 6 * - \\ & = 12 12 - \\ & = 0 \end{aligned}$$

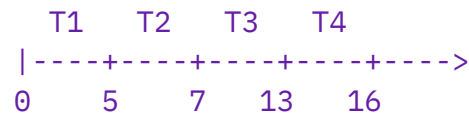
(over)

3. This question is about how an operating system schedules tasks to run on the CPU. We'll use **batch** processing, which means that once we start a task, we will run it to completion without interruption. There are two ways to select the next task to run: First-Come, First-Served (FCFS) and Shortest Job First (SJF).

Draw timelines and calculate the **average turnaround time** for scheduling the following jobs using both FCFS and SJF.

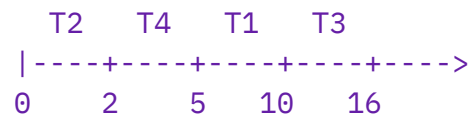
Task	Duration (sec)
T1	5
T2	2
T3	6
T4	3

FCFS:



$$(5+7+13+16)/4 = 41/4 = 10.25$$

SJF:



$$(2+5+10+16)/4 = 33/4 = 8.25$$