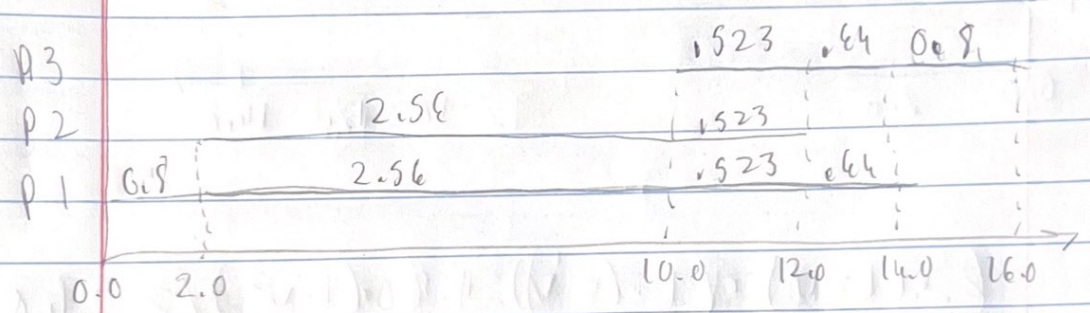
Slava Borzyuk CS-330 HW2 Scheduling

Question 6

a. w = 0.6

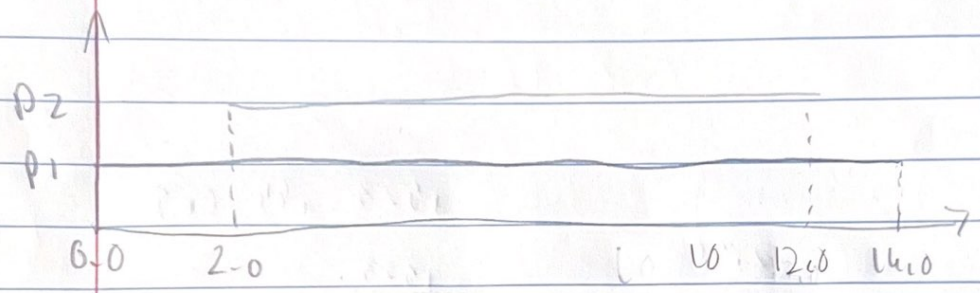



b. ((14-0) + (12-2) + (16-10)) / 3 = 10

Turnaround time = 10

Question 2

$w = ?$




$2 \cdot (1-w) + 2 \cdot (1-w) + 10 \cdot (1-w^2)/2 = 4.8$

$10 \cdot (1-w^2)/2 = 3.2$

$(10 - 10w^2)/2 = 3.2$

$5 - 5w^2 = 3.2$

$5w^2 = 5 - 3.2$

$\sqrt{w^2} = \sqrt{.36}$

$w = .6$

CPU wait ratio = .6

$2 \cdot (1-.6) + 2(1-.6) + 10(1-(.6)^2)/2 = 4.8$ ✓

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Question 8

Linux is a powerful and versatile OS. However, it is not suitable for hard real-time applications due to its unpredictable scheduling and potential priority inversion issues. For hard real-time systems, specialized real-time operating systems are preferred to ensure predictable and guaranteed task execution within tight time constraints.

Question 9

$$\sum_{k=1}^{n} \frac{C_k}{T_k} \leq U_{RM} = n\left(2^{\frac{1}{n}} - 1\right)$$

$C_1 = 2.0$
$T_1 = 8.0$

$C_2 = 6.01$
$T_2 = 10.0$

$$\frac{2.0}{8.0} + \frac{6.01}{10.0} = .851$$

Because .851 is not less than or equal to .829 that means it is not safe. It will experience request overruns.