Advanced Operating Systems Design – Spring 2023
Quiz 5

Student Name: _____ (First Last)
Student R#: _____
Score: _____ (Total: 3%)

Question 1: (3%)
A computer provides each process with 64KB of address space divided into pages of 4KB. A particular program has a text size of 29KB, a data size of 18KB, and a stack size of 15KB bytes. *Each page must contain either text, data, or stack, not a mixture of two or three of them.*
Please explain your answers.

a) Will this program fit in the address space?
   How much internal fragmentation in this case?
b) If the page size were 2KB, would it fit?
   How much internal fragmentation in this case?

a) $\frac{64}{4} = 16$ pages

textsize $= \frac{29}{4} = 8$ pages IF = 3

data $= \frac{18}{4} = 5$ pages IF = 2

stack $= \frac{15}{4} = 4$ pages IF = 1

17 pages.

6 KB

Doesn't fit.

b) $\frac{64}{2} = 32$ pages

textsize $= \frac{29}{2} = 15$ pages IF = 1

data $= \frac{18}{2} = 9$ pages IF = 0

stack $= \frac{15}{2} = 8$ pages IF = 1

32 pages

2 KB.

fits