CS 180 Homework 5

Due not later than *Sunday, August* 15, 2021

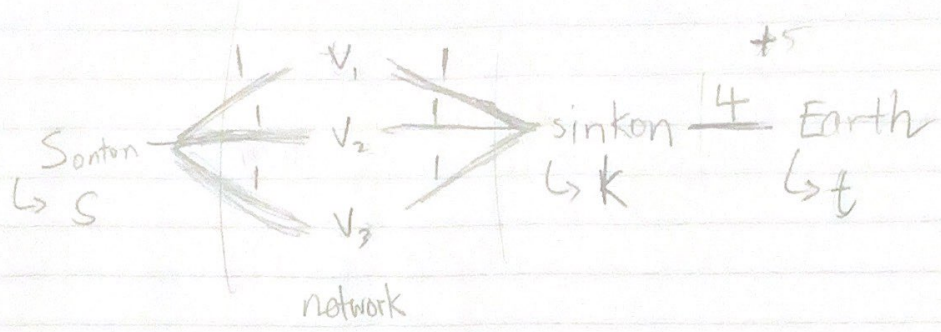
Problem. On the planet Aleph at the place Sonton in the wild mountains of Bonton, robots extract a precious liquid adroline to be transported to the Earth. However, spaceships cannot come to the wild mountains of Bonton and it is necessary to transport adroline from Sonton to the spaceport Sinkon. To do this, robots built a pipeline from Sonton to Sinkon, but due to the environment, it was impossible to construct a direct pipeline and the assembled pipeline had the structure of a network in which adroline flew. Due to the technical conditions, the capacities of the edges of this network are whole numbers. After a technological innovation, the capacities of the edges were increased by 5 units.

Suppose (A, B) was a minimum s-t cut with respect to these capacities before the innovation. Will (A, B) still be a minimum s-t cut with respect to the new capacities after the innovation?

whole numbers - n

After : n+5 for all edges

No,



A = {s}

B = V - A

6
6
6

- minimum cut of capacity 3
- if added '5', capacity will change to 18.

B = {t}

A = V - B - capacity '4' → '9'

∴ - minimum cut is changed.
minimum s-t cut = 9