6. [9 points] Isabel's friend Kei lives in the next town over. The two friends are curious about how their water bills compare. Let $I(w)$ be the amount, in dollars, Isabel pays for her water bill for a month if she uses w Centum Cubic Feet (CCFs) of water that month. Let $K(w)$ be the amount, in dollars, Kei pays for their water bill for a month if they use w CCFs of water that month. Both functions are linear and their formulas are:

$$I(w) = 4.1w + 25 \qquad K(w) = 4.5w + 15$$

a. [3 points] Find $K^{-1}(33)$ and write a sentence which explains what the value you find means in the context of the problem. *Show all work. Give your answer in exact form or rounded to at least two decimal places.*

$K^{-1}(33) =$ _____

Meaning:

b. [1 point] If Kei used two more CCFs of water in August than in June, how much more expensive was their August water bill than their June water bill? *You do not need to show any work.*

Kei's August water bill is _____dollars more than their June water bill.

c. [2 points] What is the amount of water usage (in CCFs) that would cost the same amount under both water bill plans? *Show all work. Give your answer in exact form, or rounded to at least two decimal places.*

_____CCFs

Let $g(t)$ be the number of CCFs of water Kei's household has used t days since the start of June (so $t = 1$ would correspond to 12:00am on June 2nd). Some values of $g(t)$ are displayed in the table below.

t	1	5	7	11
$g(t)$	5	19.5	28	33

d. [3 points] Kei's family went out of town (and therefore didn't use any water at home) for a couple days during June. Based on the table above, during which of the following time periods is most likely that Kei's family went out of town?

Circle the **one** best possible answer. *Show all work and explain why you circled the option you chose.*

June 3rd to June 5th June 6th to June 8th June 9th to June 11th

Explanation: