6. [11 points] Sixty liters of chlorine were accidentally spilled into a lagoon. The cost C (in millions of dollars) of removing y liters of chlorine from the water in the lagoon is given by the function

$$C(y) = \frac{y}{60 - y}.$$

a. [2 points] What is the cost of removing 10 liters of chlorine from the lagoon? Include units.

Solution: $C(10) = \frac{1}{5}$ million dollars.

b. [4 points] Compute the average rate of change of C for y between 25 and 40. Include units.

Solution: Average rate of change of C of $25 \leq y \leq 40 = \dfrac{2 - \frac{5}{7}}{40 - 25} = \dfrac{3}{35} \approx 0.085$ millions of dollars per liter.

c. [3 points] How many liters of chlorine can be removed from the lagoon if you invest 3 million dollars cleaning the lagoon? Show all your work.

Solution: If $C(y) = 3$, then $\frac{y}{60-y} = 3$. Hence $y = 180 - 3y$ and $y = 45$ liters.

d. [2 points] What is the domain of the cost function $C(y)$ in the context of this problem? Use inequalities or interval notation.

Solution: Domain$= [0, 60)$ or $0 \leq y < 60$.