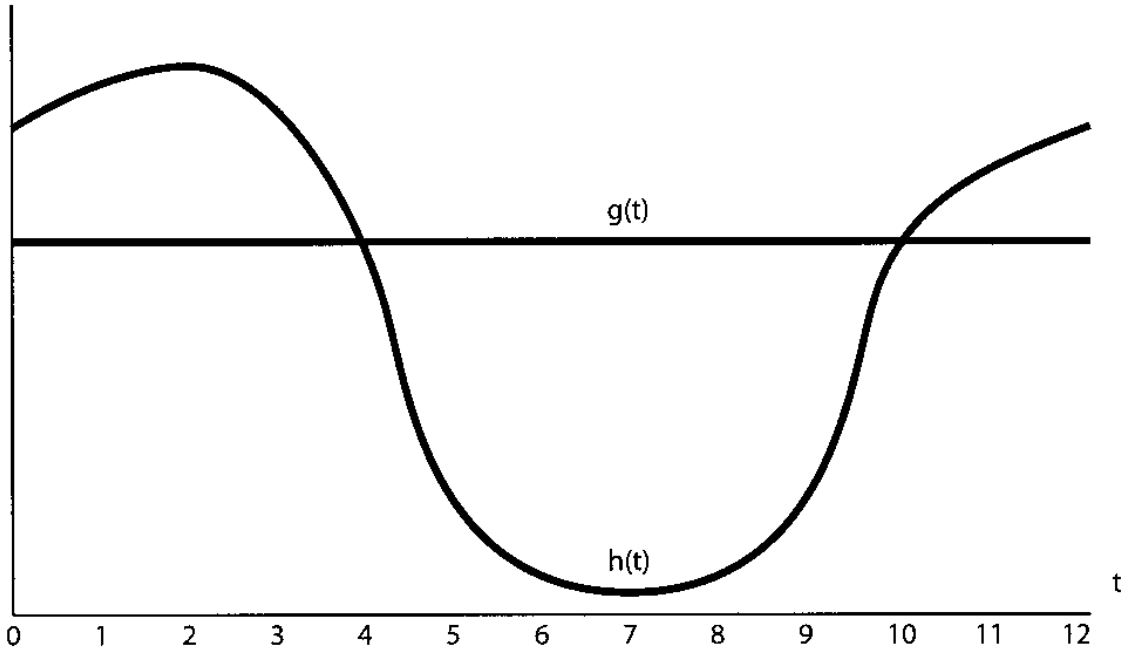
11. (8 pts) Many miles north of here, Yon Glacier is fed throughout the year by new snowfall. New snow arrives at a constant, steady rate. Snow melts off of the glacier at a rate which varies with the season. Below is a graph of the rates of snowfall and snowmelt, both functions of time t in months, where $t = 0$ corresponds to some unknown month (not necessarily January).



a) (2 pts) Is $g(t)$ the rate of snowfall or the rate of snowmelt?

It is the rate of snowfall (constant).

b) (3 pts) What value of t is probably January?

January is probably $t = 6$ or 7, when snowmelt is least (approximately). NB: glacier is in the Northern Hemisphere.

c) (3 pts) At what value of t is Yon Glacier the smallest?

It should be ~~greatest~~ smallest at $t = 4$; from $t = 4$ until $t = 10$, it is growing, since $h(t) < g(t)$ there. And the area between $h(t)$ and $g(t)$ from $t = 4$ to $t = 10$ is greater than the area between them from $t = 10$ to $t = 12$, so, although the glacier shrinks from $t = 10$ to $t = 12$, it doesn't lose all that it gained from $t = 4$ to $t = 10$.