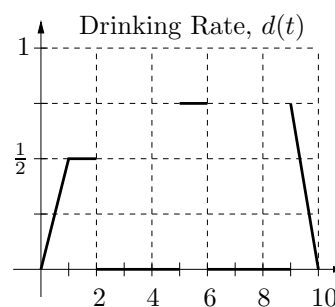
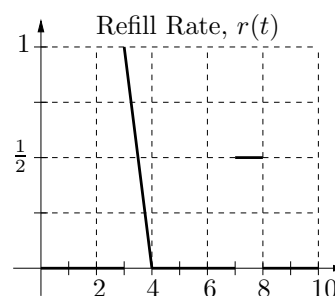
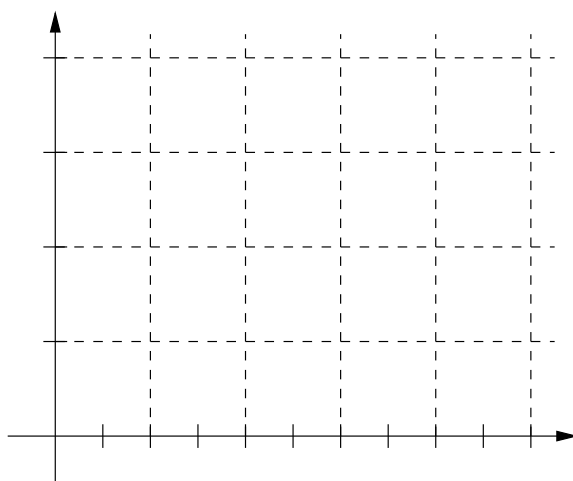


7. [16 points] As they eat their cookies, Alex and Chris are drinking milk. They each have a glass from which they are drinking, and the jug of milk is conveniently located in the middle of the table. They both start with a full glass of milk (one pint). As they are drinking, Chris sneakily refills the glass that Alex is drinking from while Alex is distracted by the student that is passing by. The rate at which Alex is drinking the milk, $d(t)$, is shown in the top figure to the right, while the rate at which Chris refills the glass, $r(t)$, is shown in the bottom figure. Both figures give the rates in pints per minute, and the time in minutes.



- (a) [8 of 16 points] Let $V(t)$ be the amount (volume) of milk in the glass that Alex is drinking from, as a function of time. Carefully sketch $V(t)$ on the axes provided. Be sure to label your axes and that your sketch has accurate vertical and horizontal scales.



- (b) [2 of 16 points] Does Alex ever finish all of the milk in the glass?