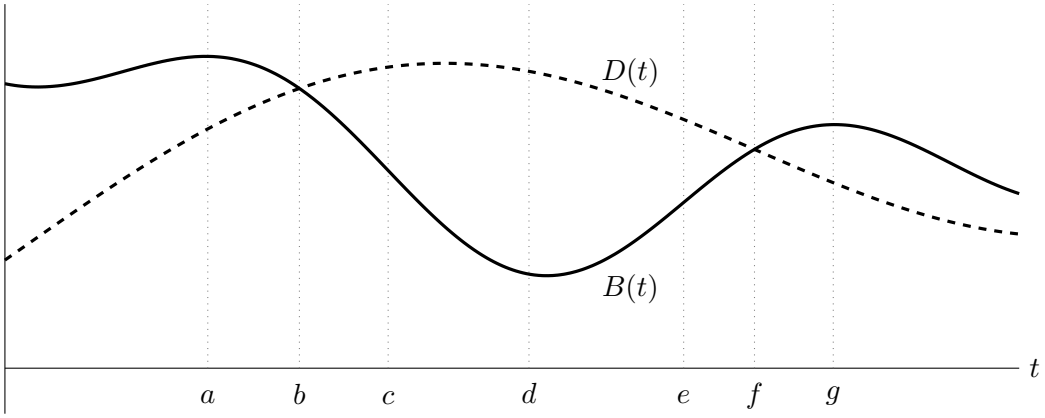
8. [9 points] Shown below are graphs of the birth rate $B(t)$ and death rate $D(t)$ of Antarctic krill in the Southern Ocean over a certain time period, in millions of krill per day. Assume that the *only* changes to the krill population in the Southern Ocean over this time result from births or deaths.



a. [6 points] Seven points in time are labeled on the graph, with the y-axis corresponding to time $t = 0$. In i.–v., write the letter of the <u>one</u> time of these seven that *best* answers the question.

i. At which of the seven times was the krill population largest? *b*

ii. At which of the seven times was the krill population smallest? *f*

iii. At which of the seven times was the krill **birth rate** increasing most rapidly? *e*

iv. At which of the seven times was the krill **population** decreasing most rapidly? *d*

v. At which of the seven times was the krill population closest to what it was at $t = 0$? *d*

vi. Over which of the following time intervals was the krill population <u>increasing</u>? *Circle all correct answers.*

$\boxed{(a,b)}$ (b,c) (c,d) (d,e) (e,f) $\boxed{(f,g)}$ NONE OF THESE

b. [3 points] Which graph below could represent the **total** krill population in the Southern Ocean over the same time period displayed above? *Circle the letter of the <u>one</u> best answer.*